



2009 SUMMARY REPORT ON GROUNDWATER CONDITIONS AT THE MONSANTO SODA SPRINGS PLANT

Soda Springs, Idaho

REPORT

Submitted To: Monsanto Soda Springs Plant
Highway 34
Soda Springs, Idaho 83276

Submitted By: Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052 USA

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Acronyms and Abbreviations

AOC	Administrative Order on Consent
ARI	Analytical Resources Inc.
IDEQ	Idaho Department of Environmental Quality
Golder	Golder Associates Inc.
LBZ	Lower Basalt Zone
MCL	Maximum Contaminant Level
N	Nitrogen
NO ₃	Nitrate
NTU	Nephelometric Turbidity Units
RG	Remediation Goal
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SVL	SVL Analytical Inc.
UBZ	Upper Basalt Zone
UFS	Underflow Solids
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

The Monsanto Soda Springs Plant is located approximately one mile north of the City of Soda Springs, Caribou County, Idaho (Figure 1). Monsanto conducted a Remedial Investigation/Feasibility Study (RI/FS) under an Administrative Order on Consent (AOC) with the U.S. Environmental Protection Agency (USEPA). The purpose of the RI/FS (which began in 1991) was to determine the nature and extent of constituents at and near the Plant. The investigation included evaluations of soil, sediments, air emissions, surface water and groundwater.

A Record of Decision (ROD) was agreed upon by Monsanto and USEPA (USEPA 1997) that prescribes selected remedies for the affected environmental media at the site. For groundwater, the selected remedy is monitored natural attenuation with institutional controls. This remedy was selected based on groundwater modeling results, as described in Section 1.1.2, that predict restoration of groundwater to concentrations below the remediation goals.

Annual groundwater and effluent discharge monitoring is conducted at and near the Plant in order to ensure that natural attenuation is proceeding per modeled predictions, and to monitor the attenuation process. This report summarizes the results of the 2009 annual groundwater monitoring at the Soda Springs Plant site. This summary is based on the groundwater quality data collected during sampling conducted from May 28 through June 3, 2009, and included the entire set of wells and springs monitored as part of the annual groundwater sampling.

This report also summarizes the long-term groundwater quality evolution at the plant, including an assessment of geochemical controls on groundwater quality and monitored natural attenuation.

1.1 Background

The Monsanto Soda Springs Plant is located one mile north of the City of Soda Springs, Caribou County, Idaho (Figure 1). The site covers an area of approximately 800 acres, with the plant accounting for 540 acres. Wells and springs at and in the vicinity of the Plant are shown on Figures 2 and 3 for the Upper Basalt Zone (UBZ) and Lower Basalt Zone (LBZ), respectively. Operational facilities are shown on Figure 4. Well completion information is summarized in Table 1 for monitoring and plant production wells at and in the vicinity of the Plant.

1.1.1 Hydrogeology

The hydrogeology at the Monsanto Plant is presented in detail in Golder Associates Inc. (Golder; 1995). The primary hydrostratigraphic zones underlying the Monsanto Plant include the Upper Basalt Zone (UBZ) and the Lower Basalt Zone (LBZ). The principal aquifer is the UBZ, which extends to a depth of about 100 feet bgs below the plant. Depth to the water table ranges from 20 feet bgs in the northeast corner to 100 feet bgs in the center of the plant. Groundwater flow in the UBZ and LBZ is a function of faulting, regional hydrogeologic conditions, and pumping of the plant production wells. The UBZ and LBZ

are broken into smaller regions (UBZ-1 through UBZ-4 and LBZ-1 through LBZ-4), based on hydrogeological controls and groundwater quality (Figures 2 and 3). Details pertaining to the breakdown of UBZ and LBZ regions are provided in Golder (1995).

Within the plant area, the Monsanto Fault and Subsidiary Fault are hinge faults that separate the UBZ into distinct zones because of offsetting of permeable interflow zones against dense, low permeability flow interiors (Golder 1995). The faults act as barriers to groundwater flow in the Plant area. South of the Plant Fenceline, the offset on the faults decreases based on correlation of basalt flows and interflow zones between boreholes and geophysical surveys (Golder 1995; Golder 2006b; Golder 2007a). The decrease in offset south of the Fenceline appears to result in some hydraulic communication between UBZ regions.

1.1.2 History of Groundwater Effects

Table 2 presents a history of groundwater investigations at the Monsanto site. Golder was initially employed to assess the impact of operations on groundwater and surface water quality at the Monsanto Plant in 1984. The 1984 study found elevated concentrations of cadmium, selenium, fluoride and sulfate in groundwater beneath the plant.

In 1992, a RI/FS was conducted by Golder and submitted to USEPA. A Phase II RI/FS was conducted and submitted to USEPA in 1995. Bi-annual groundwater monitoring occurred from 1991 to 1998, and annual groundwater monitoring has occurred since 1998.

Groundwater affected by Monsanto activities is mainly confined to the UBZ within the plant, with groundwater flow toward the south plant fenceline. The migration of plumes originating within plant boundaries is monitored by wells located at the source areas, the south fenceline, and beyond the southern boundary of the site.

There are two constituent plumes on the site originating from Monsanto operations. Affected groundwater originates from three principal source areas within the Monsanto Plant (Figure 4):

- Old Underflow Solids (UFS) ponds (UBZ-2)
- Northwest Pond (UBZ-4)
- Old Hydroclarifier (UBZ-4)

These source areas were closed and capped in the 1980's. Additional details on the closure of each of these source areas are included in Golder 1995. The plume from the old UFS ponds occurs in the UBZ-2 groundwater zone and flows within the groundwater system toward the south. The plumes from the Northwest Pond and the Old Hydroclarifier occur in the UBZ-4 zone and flow southward toward the plant production wells used for non-contact cooling water supply. Pumping from the production wells PW-01, PW-02, and PW-03 from UBZ-4 contains the plumes originating from the Northwest Pond and the Old Hydroclarifier areas to prevent offsite migration. There are other minor source areas on the site such as

the former sewage lagoon the unlined non-contact cooling water ponds, and the old coke and quartz ponds that are part of the UBZ-2 or UBZ-1 zones. These sources were characterized as part of the RI/FS process. The former sewage lagoon was identified as a potential source of nitrate and chloride. The old coke and quartzite ponds were characterized and found to have low to moderate concentrations of cadmium, fluoride, and selenium. The non-contact cooling water pond received water that contained very low levels of selenium and cadmium. The coke and quartzite ponds and the sewage evaporation pond were capped with molten slag in the 1980's or 1990's. The non-contact cooling water pond was covered with molten slag and replaced with a pipeline to convey the effluent water a cooling pond near the NPDES outfall on Soda Creek. Additional details on the characterization and closure of each of the source areas are included in Golder 1995. The plume within the UBZ-2 zone that originates from the Old Underflow Solids Ponds is not controlled by pumping.

A fourth plume originates on the Tronox (formerly Kerr McGee Chemical Corporation; Figure 1) plant site, and has spread onto the southeastern portion of the Monsanto Plant site in the UBZ-3 area. Groundwater under the southeastern portion of the plant had elevated concentrations of vanadium, chloride, molybdenum, ammonium, and sulfate attributed to Tronox.

A groundwater solute transport model was developed as part of the Phase II RI for the Monsanto plant to predict the fate and transport of constituents in groundwater in the vicinity of the plant (Golder, 1995). The solute transport model was developed for the portion of the plant where there is potential for off-site transport of constituents in groundwater (the UBZ-2 zone). The model predicted concentrations to three endpoints south of the plant (the southern plant boundary, the estimated discharge point of the plume into Soda Creek, and the estimated discharge point of the plume into Bear River), as shown in Figure 2. Projections were calculated for constituent transport for a period of over 100 years.

In 2003, Golder conducted a Five-Year Review of the groundwater remedy employed at the Plant (Golder 2003a), per conditions set in the Record of Decision (ROD). The Five-Year Review was the first of a series of reviews required to determine whether the remedy remains protective, to confirm that constituent concentration trends in groundwater are declining as predicted, and, eventually, confirm the achievement of Remediation Goals (RGs). A second Five-Year Review for the Monsanto site was completed in 2008, covering the period from 2003 to 2007, inclusive (Golder 2008a).

The 2003 Five-Year Review report included statistical trend analyses and comparisons of groundwater and outfall quality to regulatory levels, remediation goals, and groundwater modeling projections to determine if/when remediation goals have been achieved, and if not, that institutional controls are still in place and effectively preventing human exposure. The analyses completed as part of the 2003 Five-Year Review report were updated as part of the Second Five-Year Review report completed in 2008 (Golder 2008a).

As part of the 2003 Five-Year Review, a revised groundwater model was developed to provide an improved projection of constituent concentrations in the UBZ-2 zone south of the Monsanto plant. The model was revised to account for observed changes in groundwater quality since the contaminant transport model was developed in 1993, and re-interpretation of the source area history and groundwater quality data from monitoring wells. The revised model used Goldsim (2002), a graphical, probabilistic modeling tool. The projections were updated as part of the Second Five-Year Review report (Golder 2008a). The Second 5-Year Review report concluded that the remedy continues to function as intended and is protective.

Four new monitoring wells (TW-59, TW-60, TW-61, and TW-62) were installed south of the Southern Boundary wells in June and July 2007 to help delineate the southern extent of the groundwater plume in UBZ-1 and UBZ-2 (Golder 2007a). The well locations are shown on Figure 2. The new wells were first sampled in July 2007, and have been added to the locations sampled as part of the annual groundwater sampling.

1.2 Record of Decision

The USEPA submitted a ROD in 1997 for the Monsanto site that presented the selected remedy for environmental media affected by plant operations (USEPA 1997). The selected remedy for groundwater is monitored natural attenuation with institutional controls to prevent human exposure to groundwater until groundwater quality improves to concentrations less than the remediation goals.

The ROD established groundwater remediation goals for the constituents of concern: cadmium, fluoride, nitrate, selenium, and manganese. The remediation goals are the MCLs under the Safe Drinking Water Act for cadmium, fluoride, nitrate, and selenium, and a risk-based concentration for manganese, as shown in Table 3.

TABLE 3
Groundwater Remediation Goals for the Monsanto Plant

Parameter	Remediation Goal (mg/L)	Regulatory Source
Cadmium	0.005	Maximum Contaminant Level
Fluoride	4	Maximum Contaminant Level
Nitrate as NO ₃ / Nitrate as N	44 /10	Maximum Contaminant Level
Selenium	0.05	Maximum Contaminant Level
Manganese	0.18	Risk-Based Concentration

The remediation goal for nitrate (44 mg/L) is the MCL for nitrate expressed as NO₃. However, the analytical data presented in this report are in the form of nitrate as expressed nitrogen (N). The equivalent remediation goal for nitrate as N is 10 mg/L.

The ROD established the points of compliance for remediation goal monitoring. Several modifications were made to the list of point of compliance wells, as described in Golder (1998), based on availability and accessibility of some wells. Based on the ROD and modifications to the ROD, the point of compliance wells are listed below:

- Production Wells - Wells PW-01, PW-02, and PW-03
- Plant Fence Line - Wells TW-20, TW-34, TW-35, and TW-39
- Southern Boundary - Wells TW-53, TW-54, TW-55, and Harris well
- Soda Creek (surface water)

The Plant Fence Line wells are located inside the southern Plant fence line near Hooper Springs Road. The Southern Boundary wells are located within the Monsanto property boundary near its southern margin (about 1,200 feet south of the fence line). The well and spring locations are shown on Figure 2 (UBZ wells and springs) and Figure 3 (LBZ wells)

Several sample locations have been established to monitor and evaluate discharges to surface water (Soda Creek), and effects of discharges on surface water quality. These sample locations are not point of compliance locations, but are used to evaluate water quality in Soda Creek. The sample locations for surface water quality are listed below and shown on Figure 2.

- **Soda Up Station** – Soda Creek upstream of the discharge pipe (sampled since 2001). This location is about 250 feet upstream of the discharge pipe, and about 1,800 feet downstream of Hooper Springs, which discharges at about 1 to 2 cfs to Soda Creek. Flow at this station consists of discharge from Hooper Springs and Soda Creek Reservoir, located about one mile upstream. Some of the discharge from Soda Creek Reservoir is diverted for power generation and returned to Soda Creek near Hooper Spring
- **Soda Weir Station** - Soda Creek downstream of the effluent discharge, about 25 feet upstream of the weir diverting flow to the irrigation canal and power diversion (sampling initiated in 2005), and about 60 feet downstream of the discharge pipe. Flow at this location consists of flow in the creek and the effluent discharge
- **Soda Mid Station** - Soda Creek, about 50 feet upstream of the Mormon Creek confluence (sampling initiated in September 2008) and about 1,400 feet downstream of the diversion weir. At this location, flow in Soda Creek consists of a small amount of flow that bypasses the irrigation and power diversion weir, discharge from Southwest Spring, and diffuse seepage to the creek. Flow at this station is severely impaired because of the upstream power and irrigation diversion
- **Soda Down Station**– Soda Creek downstream of the discharge pipe (sampled since 2001). This location is about 3,200 feet downstream of the diversion weir and 1,800 feet downstream of the Mormon Creek confluence. Flow at this station consists of creek flow that bypasses the diversion weir, discharge from Southwest Spring and Mormon Creek, and diffuse seepage. Flow at this station is severely impaired because of the upstream power and irrigation diversion
- **Mormon Creek** – Mormon Creek is a tributary to Soda Creek. Mormon Creek discharges to Soda Creek below the irrigation and power diversion weir, immediately downstream of the Soda Mid station. Mormon Creek at its confluence with Soda Creek (sampled since 2002). Mormon Creek is fed by discharge from Mormon A, B, and C

Springs, Calf Spring, and diffuse seepage. Flow in Mormon Creek is estimated to be less than 0.5 cfs

- **Pond Inlet** – Non-contact cooling water from the Plant, consisting of water from PW-01, PW-02, and PW-03, is discharged to a cooling pond prior to discharge to Soda Creek. Water is sampled at the Inlet to the non-contact cooling water pond (sampling initiated in 2004)
- **Effluent Discharge** – Effluent (non-contact cooling water) is discharged from the non-contact cooling water pond and released into Soda Creek at the discharge pipe (sampled in triplicate since 2000) located immediately upstream of the Soda Weir station

The data from the surface water stations will be compared to effluent discharged into Soda Creek to evaluate the effects of effluent discharge on surface water.

1.3 Report Organization

Sample collection activities carried out in May and June 2009 are summarized in Section 2. Groundwater flow directions are evaluated in Section 3 using depth to water measurements collected during May and June 2009.

Section 4 contains a discussion of analytical results. Constituent concentration trends are evaluated for the point of compliance wells and Soda Creek in Section 4.1. In addition, Section 4.2 includes evaluations of constituent concentration trends at several different areas around the plant and south of the plant. These areas include:

- Northwest Pond Area – Wells TW-28, TW-16, TW-17, and TW-18
- Old UFS Ponds Area – Wells TW-22, TW-24, TW-37, and TW-45
- UFS Piles Area – Wells TW-48, TW-49, and TW-50
- Hydroclarifier Area – Wells TW-40, TW-43, and TW-44
- South of the Plant Springs – Homestead and Mormon Springs, and Mormon Creek
- 2007 Monitoring Wells - Wells TW-59, TW-60, TW-61, and TW-62

Monsanto installed two new monitoring wells in July 2005 at the sulfur dioxide landfill located north of the plant. The two new wells were sampled for the first time in 2005, and have been added to the list of wells included in the annual groundwater sampling.

The constituents evaluated in Section 4 include the constituents of concern as well as several other indicator constituents (chloride, molybdenum, and sulfate). The indicator constituents are included to evaluate the changes in groundwater quality in response to Monsanto's remedial actions.

Section 5 provides a summary of the findings of these evaluations.

Section 6 provides a summary of long-term groundwater quality evolution at the plant and an assessment of natural attenuation.

Appendices A through I present time-history graphs for selected constituents and groundwater elevation hydrographs. Appendix J presents the results of evaluations on the controls of natural attenuation at the Monsanto Plant. Appendix K presents the data validation report for the analytical data from the 2009 sampling round. Appendix L presents a groundwater flow map for UBZ-1 and UBZ-2 in September 2008.

2.0 SAMPLE COLLECTION AND ANALYTICAL ACTIVITIES

In May and June 2009, Golder collected site-wide groundwater level measurements and water quality samples per the annual sample collection requirements of the ROD. Sample collection occurred from May 28 to June 3, 2009. Groundwater samples were collected from 45 wells and 15 surface water locations during this period, as listed in Table 4. The 15 surface water locations include springs to the south of the Plant; the mouth of Mormon Creek; the discharge pipe at Soda Creek (Effluent 1 through 3); the inlet to the discharge cooling pond (Pond Inlet); and Soda Creek upstream and downstream of the effluent discharge pipe as well as above the downstream weir and above the confluence with Mormon Creek. Groundwater elevations were measured at all accessible monitoring wells during this period, as described in Section 3.

Quality control samples were collected throughout the sampling event, and include the following:

- Duplicate Samples – Field duplicate samples were collected at five locations, representing at least 5% of all monitoring samples collected
- Equipment Blank Samples – Equipment blank samples were collected from distilled water poured over or pumped through decontaminated non-dedicated sampling equipment. In May and June 2009, an equipment blank sample was collected from the Grundfos pump
- A field blank was collected by pouring the distilled water used for decontamination directly into sample bottles
- Split Samples – Split samples were collected at five monitoring well locations, representing at least 5% of all monitoring samples collected. These samples were shipped to an alternate laboratory for the same analyses as the other samples

Groundwater samples were collected using the general procedures described in Section 2.1. All springs were collected as grab samples, as described in Section 2.2. All water samples were analyzed for constituents listed in Table 5, per the requirements of the Quality Assurance Plan for the project.

2.1 General Procedures for Well Sampling

At each well, the groundwater elevation was measured and the well volume calculated using the well completion information (Table 1). All equipment used in the course of sample collection (i.e., water level tape, water quality meter probes, and non-dedicated down-hole pumps or bailers) was decontaminated prior to use at each well with distilled water at a minimum, and Alconox detergent, if necessary.

2.1.1 Well Purging

To ensure sampling of fresh groundwater rather than stagnant water in the well, groundwater was pumped at each sampled well until at least three well volumes were purged. Groundwater was purged either onto the ground or into a tank (to be disposed into the seal water pond), as designated in Table 4. The purge water was monitored for dissolved oxygen, pH, conductivity, temperature, and turbidity until these parameters stabilized. Samples were collected once a minimum of three well volumes were purged, the water quality parameters had stabilized, and the turbidity of the groundwater was less than

five NTU. Filtering of samples was necessary in May and June 2009 at TW-40 and TW-43 where samples were collected using a bailer and the turbidity remained above the five NTU threshold.

2.2 Sample Collection

Samples were collected as grab samples using the appropriate sample containers. Some sample containers contained preservative, as appropriate for the intended analyses. Once the samples were collected, they were labeled and stored in a cooler at 4 degrees C. Samples were shipped daily via overnight delivery to the laboratory for the analyses listed in Table 5. All samples were kept under chain of custody through shipment to the laboratory.

There are four methods used to collect groundwater samples from wells, as shown in Table 4. The well sample collection methods are dedicated pump, Grundfos (non-dedicated) pump, hand-bailed, and operating well, as described below.

1. Dedicated Pumps

Most of the wells are equipped with dedicated sampling pumps. Monsanto keeps a dedicated well riser for each monitoring well containing a dedicated pump. For sample collection, the corresponding well riser was attached to the well top, and the pump's electrical connection was attached to a generator with the appropriate plug and starter box. Groundwater purging and sample collection proceeded as described in the general procedures.

2. Non-Dedicated Pumps

A non-dedicated Grundfos pump was used in wells that do not contain dedicated pumps (Harris well, TW-08, TW-24, and TW-38). The Grundfos pump was decontaminated inside and out prior to use at each well, and was lowered to a few feet below the water table. Groundwater purging and sample collection proceeded as described in the general procedures.

3. Hand-Bailed Wells

In the event that there is insufficient water in a well that does not have a dedicated pump or to use the Grundfos pump to pump three well volumes, dedicated Teflon hand-bailers were used to purge groundwater. During the May and June 2009 sampling round, wells TW-40 and TW-43 were hand-bailed.

4. Operating Wells

Five wells that are regularly operated are also sampled. These wells include four Monsanto plant production wells and one residential well.

Plant production wells are plumbed directly into the plant water supply and are operated by automatic switches. The well casings for the production wells are inaccessible for groundwater level measurement and direct purging as in the other monitoring wells. Groundwater was collected as grab samples from the ports within the well houses for each production well. If a production well was not in operation at the time

of sample collection, then a manual override of the automatic switch was used to start the well. In the case of manual operation, the production well was run for at least five minutes prior to sample collection in order to purge the plumbing lines of stagnant water. The production wells were sampled in May and June 2009.

The Lewis well is a private residential well located to the southeast of the Plant that is used for irrigation. The well casing for the Lewis well is inaccessible direct purging as in the monitoring wells. Groundwater was collected as a grab sample from an outside hydrant. The pump was turned on and ran for at least twenty minutes prior to sample collection in order to purge the plumbing lines of stagnant water. Samples from the Lewis well were collected in May and June 2009.

2.3 General Procedures for Spring, Surface Water, and Effluent Sampling

The spring, surface water, pond inlet, and effluent discharge samples were collected as grab samples at all listed locations using the same general procedures as for wells. Water quality parameters were collected at each of these locations, but were not required to stabilize prior to sample collection. Spring, surface water, pond inlet, and effluent samples were not filtered regardless of turbidity.

2.4 Sample Analyses

The samples collected in May and June 2009 were shipped to a primary laboratory (SVL Analytical {SVL} in Kellogg, Idaho) for the analyses listed in Table 5. In addition, samples from wells TW-12, TW-20, TW-33, TW-54, and TW-59 were shipped to the split laboratory (Analytical Resources Inc {ARI} in Seattle, Washington) for the same analyses. Data validation was conducted on the data received from the laboratories to review and evaluate the procedures and methods used by the laboratories. Data validation evaluates the quality and quantity of the data received from the laboratories, and provides qualification of data that are outside of prescribed limitations.

The data validation report for the May and June 2009 sampling round is presented in Appendix K.

3.0 GROUNDWATER ELEVATIONS AND FLOW DIRECTIONS

The depth-to-groundwater measurements collected during the May and June 2009 sampling round were converted to groundwater elevations based on surveyed measurement point information. The groundwater elevations are presented in Table 6. Figures 5 and 6 provide groundwater contour maps showing the interpreted directions of groundwater flow underlying the plant for the UBZ and the LBZ, respectively, in May and June 2009. Groundwater elevation hydrographs are included in Appendix I.

In the UBZ, the groundwater levels measured in 2009 were generally about 1 to 5 feet higher than in the spring of 2008. The UBZ groundwater elevations observed in the spring of 2009 in most wells were similar to the highest groundwater elevations observed in the UBZ which occurred in the spring of 1993. Over the period October 2008 through April 2009 inclusive, there was about 11.5 inches of precipitation at Soda Springs. In comparison, the average precipitation at Soda Springs over the months of October through April, inclusive, is about 8.2 inches for Water Years 1979 through 2009, inclusive. Long-term groundwater elevations in the UBZ are generally stable.

In the UBZ, groundwater flow in May and June 2009 is predominantly from north to south (Figure 5), similar to previously observed groundwater flow patterns. In the northeast corner of the plant, groundwater also flows into the plant area from the northeast. The four production wells (PW-01, PW-02, PW-03, and PW-04) create two areas of depressed groundwater levels. One area of depressed water levels occurs surrounding PW-04 at the north end of the plant, and a second area occurs surrounding PW-01, PW-02, and PW-03 located in the center of the plant. Groundwater flow at the southern boundary of the Plant is in a southerly direction. Groundwater eventually begins to flow southwest toward Mormon Creek and Soda Creek. Groundwater discharges to the head of Mormon Creek at Mormon Springs (A, B, and C) and Calf Spring. Groundwater subsequently discharges as diffuse seepage along the remainder of the Mormon Creek channel.

In the LBZ, spring 2009 groundwater elevations are about 1 to 5 feet higher than in spring 2008, and similar to the highest groundwater elevations observed in the LBZ in the spring of 1993. The LBZ groundwater flow in May and June 2009 follows a pattern similar to that observed in the UBZ (Figure 6). The groundwater flow patterns in the UBZ and LBZ observed for May and June 2009 are similar to the flow patterns previously observed in the RI/FS and in previous annual and five-year review reports.

4.0 ANALYTICAL RESULTS

Constituent concentration trends for point of compliance locations are presented in Section 4.1. The constituent concentration trends for other wells and springs are presented in Section 4.2. Time history charts for each location reviewed in this section are presented in Appendices A through H.

Validation of the 2009 data is presented in Appendix K. Selected data were qualified as estimated (“J” or “UJ” qualifier). The primary constituents qualified as estimated are anions (chloride, fluoride, and sulfate), ammonia, alkalinity, nitrate, total dissolved solids, and phosphorus. Most of the estimated qualifiers were because of elevated cooler temperatures (greater than 4°C +/- 2°C) upon receipt at the laboratory. Several other constituents from selected samples were qualified based on the results of laboratory quality control procedures. The data qualifications do not affect the usability of the data. Additional data validation information is presented in Appendix K.

4.1 Constituent Concentration Trends in Point of Compliance Wells and Springs

The results of the analyses at the 2009 sample locations are presented in Table 7. This section summarizes the results for the groundwater point of compliance locations (PW-01, PW-02, PW-03, TW-20, TW-34, TW-35, TW-39, TW-53, TW-54, TW-55, and Harris well). Mormon A Spring and Mormon Creek are included for comparison against Southern Boundary wells and Soda Creek. Table 8 summarizes the constituent trends at these locations. The trends are based on a visual interpretation of concentration trends over the last five years from 2005 through 2009. The Second Five-Year Report (Golder 2008) includes a formal statistical analysis of the data from 1991 through 2007, and from 2000 through 2007.

4.1.1 Cadmium

The remediation goal for cadmium is 0.005 mg/L. Time-history plots of cadmium concentrations are included in Appendix A.

- **Production Wells** – Over the last five years, cadmium in PW-01 and PW-02 have increased. The cadmium concentration trend in PW-03 over the last five years is stable (Figure A-1). Cadmium concentrations in PW-01 increased from 0.0435 mg/L in 2005 to 0.0589 mg/L in 2009, above the remediation goal. The cadmium concentration in PW-02 is 0.006 mg/L in 2009, which is slightly above the remediation goal, and an increase from the 2005 concentration of 0.0035 mg/L. Cadmium is below the remediation goal in PW-03 (0.0016 mg/L) (Figure A-1).
- **South Fence Line Wells** – The cadmium concentration in TW-20 decreased over the last five years, while cadmium has been stable in TW-34 and TW-35. Cadmium has increased in TW-39 over the last five years. The 2009 cadmium concentration in TW-20 is below the remediation goal at 0.0048 mg/L. Cadmium is stable in TW-34 and TW-35 over the last five years with non-detected concentrations (less than 0.00026 mg/L) in 2009 in both wells. Cadmium increased in TW-39 since 2005, when a concentration of 0.013 mg/L was observed, to a 2009 concentration of 0.0168 mg/L, above the remediation goal (Figure A-2).

- **Southern Boundary Wells** – Over the last five years, cadmium concentrations have been stable in the Southern Boundary Wells. Cadmium concentrations are below the remediation goal in wells TW-53, TW-54, and TW-55 (Figure A-3). Cadmium concentrations are at or below the detection limit in these wells.
- **Mormon A Spring and Harris Well** – Over the last five years, cadmium increased at Mormon A Spring and has been stable in the Harris Well. Cadmium at Mormon A Spring increased from a 2005 concentration of 0.0142 mg/L, and remains above the remediation goal, with a June 2009 concentration of 0.0163 mg/L. Cadmium is below the remediation goal in the Harris Well (less than 0.00096 mg/L; Figure A-4). The concentration of cadmium in Mormon Creek at its confluence with Soda Creek is 0.0046 mg/L in June 2009.

4.1.2 Fluoride

The remediation goal for fluoride is 4 mg/L. Time-history plots of fluoride concentrations are included in Appendix B.

- **Production Wells** – Fluoride concentrations have been stable over the last five years and are below the remediation goal at less than 2 mg/L in all three point of compliance production wells (PW-01, PW-02, and PW-03; Figure B-1).
- **South Fence Line Wells** – Over the last five years, fluoride concentrations have been stable in South Fence Line wells TW-20, TW-34, and TW-35. Fluoride concentrations have increased over the last five years in TW-39. The 2009 fluoride concentration in TW-20 is 2.13 mg/L (below the remediation goal). Fluoride is below the remediation goal in TW-34 and TW-35, with 2009 concentrations of 0.378 mg/L and 0.147 mg/L, respectively. The fluoride concentration in TW-39 has increased from 2.05 mg/L in 2005 to a 2009 fluoride concentration of 3.76 mg/L, below the remediation goal of 4 mg/L (Figure B-2).
- **Southern Boundary Wells** – Over the last five years, fluoride concentrations in the Southern Boundary wells have increased. In TW-53, the fluoride concentration increased from 2.04 mg/L in 2005 to a 2009 concentration of 3.65 mg/L, below the remediation goal. Fluoride in TW-54 has been below the remediation goal since 2000, with a 2005 concentration of 2.27 mg/L, but increased above the remediation goal to 4.21 mg/L in 2009 based on analysis by the primary laboratory (SVL). A split sample collected at TW-54 in 2009 measured 2.8 mg/L. In TW-55, the 2009 fluoride concentration is 1.48 mg/L, below the remediation goal, but an increase from the 2005 concentration (0.2 mg/L; Figure B-3).
- **Mormon A Spring and Harris Well** – Over the past five years, fluoride concentrations have increased in Mormon A Spring and the Harris Well. Fluoride has been below the remediation goal at the Harris Well since 2001. The 2005 fluoride concentration in the Harris Well was 2.58 mg/L. In 2009, the fluoride concentration increased to 6.48 mg/L, above the remediation goal. Fluoride decreased at Mormon Spring between 1996 and 2005. In 2005, the fluoride concentration was 2.25 mg/L. In 2006, the concentration increased to 3.1 mg/L. In 2009, the fluoride concentration increased slightly to 4.03 mg/L, just above the remediation goal. In Mormon Creek, the fluoride concentrations were 2.09 mg/L and 1.64 mg/L in June and September 2008, respectively (Figure B-4). The fluoride concentration in Mormon Creek increased slightly to 2.43 mg/L in 2009.

4.1.3 Manganese

The remediation goal for manganese is 0.18 mg/L. As described in Golder 2003b, a temporary increase in manganese concentrations occurred in 2002 because of an increase of the detection limit from 0.01 to 0.06 mg/L for the 2002 sampling round. In all cases where manganese was not detected in

2002, 2003 manganese returned to levels similar to 2001 manganese levels. Time-history plots of manganese concentrations are included in Appendix C.

- **Production Wells** – Over the last five years, manganese concentrations have been stable in PW-01, PW-02, and PW-03. In 2009, manganese was not detected (less than 0.0013 mg/L) in any of the production wells (Figure C-1).
- **South Fence Line Wells** – Over the last five years, manganese concentrations have been stable in TW-20, TW-35, and TW-39, and are decreasing in TW-34. Manganese has decreased since the mid 1980's in TW-20 and TW-39, and has stabilized at or below the detection limit (less than 0.0015 mg/L) since 1995. The concentration of manganese is stable in TW-35, with a 2009 concentration of 0.146 mg/L, below the remediation goal. The 2009 concentration of manganese in TW-34 (0.17 mg/L) is slightly below the remediation goal (Figure C-2). It should be noted that TW-34 and TW-35 are completed in the transition zone between UBZ-2 and LBZ-2. Some sodic groundwater which naturally contains elevated manganese concentrations occurs in these wells due to the upward hydraulic gradient from the LBZ-2 (Golder 1995).
- **Southern Boundary Wells** – Manganese has been stable in the Southern Boundary wells since the mid 1990's, and is below the remediation goal in all wells. Concentrations in 2009 in the Southern Boundary Wells are all less than the detection limit (0.0013 mg/L; Figure C-3).
- **Mormon Spring and Harris Well** – Manganese has been stable at Mormon Spring and the Harris Well over the last five years, and is below the remediation goal at these locations. The manganese concentration at Mormon Creek is stable in 2009 with a manganese concentration of 0.0142 mg/L (Figure C-4)

4.1.4 Nitrate

The remediation goal for nitrate as N is 10 mg/L. Time-history plots of nitrate as N concentrations are included in Appendix D.

- **Production Wells** - Nitrate as N concentrations have stabilized at or below 5 mg/L and are below the remediation goal in all production wells (Figure D-1).
- **South Fence Line Wells** – Nitrate concentrations have been stable or decreasing over the last five years the South Fence Line wells. The 2009 nitrate concentration in TW-20 is 8.81 mg/L, below the remediation goal, and a decrease from the 2005 concentration of 13.2 mg/L. Nitrate as N is stable in TW-34 and TW-35 at concentrations below the remediation goal (Figure D-2). In TW-39, the nitrate as N concentration was 11.2 mg/L in 2005. The 2009 nitrate as N concentration in TW-39 decreased to 8.26 mg/L in 2009, below the remediation goal.
- **Southern Boundary Wells** – Nitrate as N has been stable in TW-54 and TW-55, but increased in TW-53 over the last five years. The 2005 nitrate as N concentration in TW-53 was 5.43 mg/L. The nitrate as N concentration in TW-53 increased to 6.1 mg/L in 2009. The 2009 nitrate as N concentration in TW-54 is 7.35 mg/L, below the remediation goal. Nitrate as N remains below the remediation goal in TW-55 with a 2009 concentration of 3.09 mg/L, similar to the June and September 2008 concentrations of 3.66 mg/L and 3.58 mg/L, respectively (Figure D-3).
- **Mormon A Spring and Harris Wells** – Over the last five years, nitrate as N concentrations have been stable at the Harris Well and Mormon A Spring. In 2005, the nitrate concentration in Mormon A Spring was 9.45 mg/L. The 2009 nitrate as N concentration at Mormon A Spring is similar at 9.05 mg/L. At the Harris Well, the 2009 nitrate as N concentration is 5.76 mg/L. Concentrations of nitrate as N are less than the remediation goal at both locations. The 2009 nitrate as N concentration in

Mormon Creek is 5.41 mg/L, an increase from 2008 concentrations of 3.8 mg/L in June and 3.68 mg/L in September (Figure D-4).

4.1.5 Selenium

The remediation goal for selenium is 0.05 mg/L. Time-history plots of selenium concentrations are included in Appendix E.

- **Production Wells** - Selenium has been stable and below the remediation goal in PW-02 and PW-03 since the early to mid 1990's. The selenium concentration in PW-01 has been stable over the last five years with a 2009 concentration of 0.0687 mg/L, above the remediation goal (Figure E-1).
- **South Fence Line Wells** – Over the last five years, selenium concentrations in the Fence Line wells have decreased (TW-20) or are stable (TW-34 and TW_35). In TW-39 selenium concentrations have increased. Selenium was 0.432 mg/L in TW-20 in 2005. In 2009, the selenium concentration at TW-20 is 0.0994 mg/L. Selenium is stable in TW-34 and TW-35, with all selenium concentrations less than the remediation goal. The 2005 selenium concentration in TW-39 was 0.139 mg/L. The selenium concentration in TW-39 increased to 0.423 mg/L (average of two duplicate samples) in 2009 (Figure E-1). The concentration in TW-39 remains above the remediation goal.
- **Southern Boundary Wells** – Over the last five years, the selenium concentrations in the Southern Boundary Wells have decreased in TW-54 and TW-55, but increasing in TW-53. In 2005, the selenium concentration was 0.15 mg/L in TW-53. The 2009 selenium concentrations in TW-53 increased to 0.199 mg/L. In TW-54, the selenium concentration was 0.311 mg/L in 2005. The selenium concentration in TW-54 decreased to 0.136 mg/L in 2009 (Figure E-3). In TW-55, selenium concentrations decreased from 0.088 mg/L in 2005 to 0.0309 mg/L in 2009. Selenium concentrations are below the remediation goal in TW-55, but remain above the remediation goal in TW-53 and TW-54.
- **Mormon A Spring and Harris Wells** – Selenium concentrations in Mormon A Spring and Harris Well have been stable over the last five years. Selenium concentrations in Mormon A Spring are above the remediation goal. The 2009 selenium concentration of 0.256 mg/L is similar to the 2005 concentration of 0.258 mg/L. The 2009 selenium concentration in the Harris Well is 0.244 mg/L, above the remediation goal. The selenium concentration in Mormon Creek has steadily increased from 0.07 mg/L in 2002 to 0.206 mg/L in June 2008. The September 2008 selenium concentration was 0.205 mg/L. The 2009 selenium concentration is similar at 0.201 mg/L.

4.1.6 Chloride

There is no remediation goal for chloride at the site. Time-history plots of chloride concentrations are included in Appendix F.

- **Production Wells** – Over the last five years, chloride concentrations have increased in the production wells. Chloride has increased since 2005 (91 mg/L) in PW-01 to about 185 mg/L in 2009. Chloride has increased in PW-02 and PW-03 from about 60 mg/L in 2005 to about 80 to 90 mg/L in 2009 (Figure F-1).
- **South Fence Line Wells** – In the Fence Line Wells, chloride has been stable in TW-35 over the last five years. Over the last five years, chloride has decreased in TW-20 but increased in TW-39. Chloride in TW-20 decreased from 139 mg/L in 2005 to about 94 mg/L in 2009. Chloride has decreased in TW-34 with 2009 concentrations at 35 mg/L. Chloride has increased in TW-39 since 2005 (88 mg/L) to a 2009 concentration of 135 mg/L (Figure F-2).

- **Southern Boundary Wells** – Over the last five years, chloride has been stable in TW-53 and has decreased in TW-54 and TW-55. The 2009 chloride concentration in TW-53 is 78 mg/L. In TW-54, chloride decreased from 121 mg/L in 2005 to a 2009 concentration of 82 mg/L (Figure F-3). In TW-55, the chloride concentration decreased from 59 mg/L in 2005 to 45 mg/L in 2009.
- **Mormon A Spring and Harris Well** – Over the last five years, chloride at the Harris Well is stable or decreasing slightly, while chloride at Mormon A Spring is increasing slightly. Chloride at Mormon A Spring appears to have increased from 2005 (106 mg/L) to 119 mg/L in 2009. Chloride in Mormon Creek decreased from 2002 to 2009. Chloride in Mormon Creek in 2009 is 165 mg/L, a decrease from the June and September 2008 concentrations of 228 mg/L and 267 mg/L, respectively. The chloride concentration at the Harris Well decreased slightly from 2005 (106 mg/L) to 2009 (85 mg/L; Figure F-4).

4.1.7 Molybdenum

There is no remediation goal for molybdenum at the site. Time-history plots of molybdenum concentrations are included in Appendix G.

- **Production Wells** - Molybdenum has increased slightly in PW-01 and PW-02, and is stable in PW-03 over the last five years. The 2005 molybdenum concentrations in PW-01, PW-02, and PW-03 were 0.028 mg/L, 0.0254 mg/L, and 0.0366 mg/L, respectively. The 2009 concentrations in PW-01, PW-02, and PW-03 are 0.0441 mg/L, 0.0426 mg/L, and 0.0524 mg/L, respectively (Figure G-1).
- **South Fence Line Wells** – In the South Fence Line Wells, molybdenum has been stable (TW-35) or decreasing (TW-20 and TW-34) over the last five years, but increasing in TW-39. The 2009 molybdenum concentration in TW-20 is 0.0426 mg/L, a decrease from the 2005 concentration of 0.0622 mg/L. In TW-34, molybdenum decreased from 0.01 mg/L in 2005 to 0.0031 mg/L in 2009. Molybdenum has been stable at 0.01 mg/L or less in TW-35 since 1994. In TW-39, the 2005 molybdenum concentration was 0.0437 mg/L. The 2009 concentration increased to 0.075 mg/L (Figure G-2).
- **Southern Boundary Wells** – Over the last five years, molybdenum concentrations have been stable in TW-53 and TW-55, but have increased in TW-54. Molybdenum concentrations are all less than 0.1 mg/L in the Southern Boundary Wells. The 2009 molybdenum concentrations in TW-53 and TW-55 are 0.0487 mg/L and 0.043 mg/L, respectively. In TW-54, the 2005 molybdenum concentration was 0.0502 mg/L. The 2009 concentration increased to 0.0789 mg/L (Figure G-3).
- **Mormon Spring and Harris Well** – Molybdenum has increased since 2005 in Mormon Spring and Harris Well. The 2005 molybdenum concentrations were 0.0495 mg/L at Mormon A Spring and 0.06 mg/L at the Harris Well. The 2009 molybdenum concentrations increased to 0.0785 mg/L at Mormon A Spring and 0.0718 mg/L at the Harris Well. The 2009 molybdenum concentration in Mormon Creek is 0.0523 mg/L (Figure G-4).

4.1.8 Sulfate

There is no remediation goal for sulfate at the site. Time-history plots of sulfate concentrations are included in Appendix H.

- **Production Wells** - Sulfate concentrations in PW-01, PW-02, and PW-03 have increased slightly since 2005, with 2009 concentrations remaining less than 250 mg/L (Figure H-1).

- **South Fence Line Wells** – Over the last five years, sulfate concentrations have been stable (TW-35) or decreasing (TW-20 and TW-34), while concentrations in TW-39 have increased. The sulfate concentration in TW-20 decreased from 743 mg/L in 2005 to 454 mg/L in 2009 (average of two duplicate samples). Sulfate decreased in TW-34 from 199 mg/L in 2005 to 148 mg/L in 2009. Sulfate has been stable at less than 250 mg/L in TW-35. Since 2005, the sulfate concentration in TW-39 has increased from 439 mg/L in 2005 to 647 mg/L in 2009 (Figure H-2).
- **Southern Boundary Wells** – Sulfate concentrations have been decreasing in Southern Boundary Wells TW-54 and TW-55 between 2005 and 2009, but have increased in TW-53. Sulfate in TW-54 and TW-55 is stable at 2009 concentrations of 377 mg/L and 173 mg/L (average of two duplicate samples), respectively. Sulfate has increased in TW-53 from 331 mg/L in 2005 to 346 mg/L in 2009 (Figure H-3).
- **Mormon Spring and Harris Well** – Over the last five years, sulfate in Mormon A Spring increased, but is stable or decreasing slightly in the Harris Well. Sulfate concentrations in Mormon A Spring increased from 416 mg/L in 2005 to 466 mg/L in 2009. In the Harris Well, the sulfate concentration was 439 mg/L in 2005. In 2009 the sulfate concentration in the Harris Well decreased slightly to 365 mg/L. In Mormon Creek, sulfate increased to 383 mg/L in 2009, from a concentration of 302 mg/L in 2006 (Figure H-4).

4.2 Constituent Concentration Trends in Point of Compliance Surface Water

The results of the analyses at the 2009 sample locations are presented in Table 7. This section summarizes the results for the surface water point of compliance locations (Soda Creek downstream of the effluent discharge). Soda Creek upstream of the effluent discharge and the effluent discharge are included for comparison against Soda Creek downstream of the effluent discharge. Table 8 summarizes the constituent trends at these locations. The trends are based on a visual interpretation of data from 2005 through 2009.

4.2.1 Cadmium

The remediation goal for cadmium is 0.005 mg/L. Time-history plots of cadmium concentrations are included in Appendix A.

- **Soda Creek** - Cadmium concentrations upstream (Soda Up) and downstream (Soda Down) of the effluent discharge to Soda Creek have been stable since measurements began in 2001. Cadmium at Soda Up is undetected at less than 0.00096 mg/L (Figure A-5). At Soda Down, cadmium was detected at a concentration of 0.0036 in June 2009.
- **Effluent Discharge** – Cadmium concentrations in the effluent discharge have increased slightly since 2005 (0.0024 mg/L). The 2009 average cadmium concentrations in the effluent discharge (sampled in triplicate) was 0.0081 mg/L in June (Figure A-5).

4.2.2 Fluoride

The remediation goal for fluoride is 4 mg/L. Time-history plots of fluoride concentrations are included in Appendix B.

- **Soda Creek** – Since 2005, fluoride concentrations in Soda Creek upstream of the effluent discharge (Soda Up) have been stable, while fluoride concentrations at the downstream location (Soda Down) have increased slightly. The 2009 concentration at the Soda Up station is stable at 0.389 mg/L. At the Soda Down station, fluoride

concentrations have increased slightly from 2005 (0.418 mg/L) to 1.04 mg/L in 2009. The concentration at the weir below the effluent discharge (Soda Weir) was 0.373 mg/L in 2009 (Figure B-5).

- **Effluent Discharge** – Since 2005, fluoride concentrations in the effluent discharge have increased. The 2005 fluoride concentration was 0.283 mg/L. The June 2009 average fluoride concentration in the effluent discharge (sampled in triplicate) is 0.785 mg/L (Figure B-5), a slight increase from the June and September 2008 concentrations of 0.378 mg/L and 0.524 mg/L, respectively.

4.2.3 Manganese

The remediation goal for manganese is 0.18 mg/L. As described in Golder 2003b, a temporary increase in manganese concentrations occurred in 2002 because of an increase of the detection limit from 0.01 to 0.06 mg/L for the 2002 sampling round. In all cases where manganese was not detected in 2002, 2003 manganese returned to levels similar to 2001 manganese levels. Time-history plots of manganese concentrations are included in Appendix C.

- **Soda Creek** — Manganese concentrations in Soda Creek have increased over the last five years at the Soda Up station, but are stable at the Soda Down station. In 2005, the manganese concentration at the Soda Up station was 0.0789 mg/L. Manganese concentrations in 2009 are above the remediation goal at the Soda Up station (0.207 mg/L). At the Soda weir station, the 2009 manganese concentration is also above the remediation goal (0.183 mg/L). At the Soda Down station, manganese concentration was 0.106 mg/L in 2005 and is similar in 2009 (0.105 mg/L), below the remediation goal. Manganese concentrations are increasing slowly in Soda Creek at the Soda Up and Soda Weir sampling locations (Figure C-5).
- **Effluent Discharge** – Manganese concentrations in the effluent discharge have been stable since 2005. Manganese is not detected (less than 0.0013 mg/L) in the effluent discharge (Figure C-5).

4.2.4 Nitrate

The remediation goal for nitrate as N is 10 mg/L. Time-history plots of nitrate as N concentrations are included in Appendix D.

- **Soda Creek** – Nitrate as N concentrations have been stable at the Soda Up station and increasing slightly at the Soda Down station since 2005. Nitrate as N concentrations are below the remediation goal at both Soda Up and Soda Down stations. The 2009 nitrate as N concentration at the Soda Up station is 0.40 mg/L. At the Soda Down station, the 2005 nitrate as N concentration was 0.7 mg/L. The nitrate as N concentration increased to 2.14 mg/L in 2009. The nitrate as N concentration at the Soda Weir station is 0.834 mg/L in 2009 (Figure D-5).
- **Effluent Discharge** – The nitrate as N concentration in the effluent discharge has been generally stable since 2005, ranging from 3.18 mg/L in 2008 to 4.48 mg/L in 2006. The 2009 average concentration is 3.93 mg/L (Figure D-5).

4.2.5 Selenium

The remediation goal for selenium is 0.05 mg/L. When the ROD was finalized, there was no aquatic water quality standard for selenium in effect. Subsequently, the State of Idaho established an aquatic

chronic standard for selenium of 0.005 mg/L in 2003 (IDAPA 58.01.02.210). Time-history plots of selenium concentrations are included in Appendix E.

- **Soda Creek** — Over the last five years, selenium has been stable in Soda Creek at the upstream sampling location (Soda Up; Figure 2). Selenium was not detected in Soda Creek at the Soda Up station in 2009 (less than 0.0006 mg/L). Selenium has been stable and below the remediation goal since sampling was initiated in 2005 in Soda Creek immediately upstream of the irrigation weir (Soda Weir station), and was detected at an estimated concentration of 0.0016 mg/L in 2009 (Figure E-5).

At the downstream location, below the irrigation and power diversion weir where most of the flow in Soda Creek is diverted (Soda Down; Figure 2), selenium concentrations have increased since 2005. At the Soda Down station, the 2005 selenium concentration was 0.026 mg/L. The 2009 selenium concentration at Soda Down increased to 0.0694 mg/L, which is above the remediation goal and chronic aquatic standard. However, this reach of Soda Creek is severely impaired by upstream irrigation and power diversions and supports only limited flow and habitat.

- **Effluent Discharge** – The selenium concentration in the effluent discharge has been stable and below the remediation goal since 2000, with a 2009 concentration of 0.0244 mg/L (average of three duplicate samples; Figure E-5).

4.2.6 Chloride

There is no remediation goal for chloride at the site. Time-history plots of chloride concentrations are included in Appendix F.

- **Soda Creek** — Concentrations of chloride in Soda Creek have been stable since 2005. Chloride concentrations at the Soda Up and Soda Down locations are 11.5 mg/L and 54.9 mg/L, respectively in 2009. The chloride concentration of Soda Creek at the Soda Weir station is 30.8 mg/L in 2009 (Figure F-5). The chloride concentration in Soda Creek immediately above the Mormon Creek confluence (Soda Mid station) is 14.7 mg/L in 2009.
- **Effluent Discharge** – Over the last five years, chloride has increased in the effluent discharge. Chloride in the effluent discharge increased from about 94 mg/L in 2005 to a 2009 chloride concentration of 392 mg/L (Figure F-5).

4.2.7 Molybdenum

There is no remediation goal for molybdenum at the site. Time-history plots of molybdenum concentrations are included in Appendix G.

- **Soda Creek** — Molybdenum is stable in Soda Creek. Concentrations in 2009 at the Soda Up and Soda Down stations are 0.0103 mg/L and 0.0225 mg/L, respectively. The molybdenum concentration at the Soda Weir station is 0.0013 mg/L in 2009 (Figure G-5).
- **Effluent Discharge** – Molybdenum concentrations in the effluent discharge have been increasing since 2005. The molybdenum concentration in the effluent discharge was 0.0314 mg/L in 2005. Molybdenum concentrations are 0.049 mg/L (average of three samples) in 2009 (Figure G-5).

4.2.8 Sulfate

There is no remediation goal for sulfate at the site. Time-history plots of sulfate concentrations are included in Appendix H.

- **Soda Creek** — Sulfate has been stable at the Soda Up station since 2005. At the Soda Down station, sulfate has increased since 2005. The 2009 sulfate concentration at the Soda Up station is 42.8 mg/L. At the Soda Down station, the 2005 sulfate concentration was 70 mg/L. The sulfate concentration at Soda Down increased to 146 mg/L in 2009. The sulfate concentration at the Soda Weir station was 48.5 mg/L in 2009 (Figure H-5).
- **Effluent Discharge** – The sulfate concentration in the effluent discharge has increased slightly since 2005 (103 mg/L; Figure H-5). The 2009 sulfate concentration in the effluent discharge is 166 mg/L (average of three triplicate samples).

4.3 Constituent Concentration Trends in Other Wells and Springs

This section summarizes water quality monitoring at six locations at the Plant site and south of the Plant that are not point of compliance locations. They are the NW Pond (TW-16, TW-17, and TW-18), the old UFS ponds area (TW-22, TW-24, TW-37, and TW-45), the UFS piles area (TW-48, TW-49, and TW-50), the Old Hydroclarifier area (TW-40, TW-43 and TW-44), springs to the southwest of the Plant (Homestead and Mormon springs), and the new monitoring wells to the south of the Plant installed in 2007 (TW-59, TW-60, TW-61, and TW-62). Table 9 summarizes the constituent trends at these wells and springs. Constituent trends for the 2007 monitoring wells have not been summarized because there are only three samples from these wells. The trends are based on a visual interpretation of data from 2005 through 2009. The 2008 Five-Year Review Report (Golder 2008) includes a formal statistical analysis of the data from these locations with the exception of the 2007 monitoring wells. Although these wells and springs are not point of compliance locations, the remediation goals for the constituents of concern are included for reference.

4.3.1 Cadmium

Time-history plots of cadmium concentrations are included in Appendix A. The remediation goal for cadmium is 0.005 mg/L.

- **Northwest Pond Area** - Cadmium has stabilized at wells TW-16, TW-17, and TW-18 with 2009 concentrations of 0.433 mg/L, 0.0028 mg/L, and non-detect (less than 0.00096 mg/L), respectively (Figure A-6). Cadmium concentrations in background well TW-29 are stable and below the detection limit (less than 0.0013) mg/L in 2009.
- **Old Underflow Solids Ponds Area** – Cadmium in the wells near the old UFS ponds have remained relatively stable over the last five years (with the exception of TW-37, which shows an increase). The 2009 concentrations in the UBZ wells in this area (TW-22, TW-24, and TW-37) are 0.0230 mg/L, 0.289 mg/L and 0.964 mg/L, respectively. In TW-37, cadmium increased from a 2005 concentration of 0.452 mg/L to 0.964 mg/L in 2009. In TW-45, which is completed in the LBZ, cadmium concentrations have been stable since 1994 with a concentration of 0.0028 mg/L in 2009 (Figure A-7). Cadmium concentrations in background well TW-57 are stable and below the detection limit (less than 0.00096 mg/L) in 2009.

- **Underflow Solids Piles Area** – Since 2005, cadmium has been stable and below the detection limit (0.002 to 0.00013 mg/L) in TW-48 and TW-49, and decreasing in TW-50. In TW-50, the 2005 cadmium concentration was 0.0307 mg/L. In 2009, cadmium decreased to 0.0055 mg/L (Figure A-8).
- **Old Hydroclarifier Area** – Cadmium has been relatively stable (TW-43 and TW-44) or decreasing (TW-40) in the Old Hydroclarifier wells since 2005. During the 2009 sampling round, cadmium in TW-40 was 2.02 mg/L, a decrease from the 2005 concentration of 2.46 mg/L. Cadmium is stable in TW-43 with a 2009 concentration of 1.67 mg/L. Cadmium was detected in TW-44 completed in the LBZ in 2009 at a concentration of 0.002 mg/L (Figure A-9).
- **South of the Plant Springs** – Cadmium has not been detected in Homestead Spring since sampling began at this location in 1991, with the exception of 2009, when it was detected at an estimated concentration of 0.00024 mg/L. Cadmium concentrations at Mormon A Spring have increased between 2005 (0.0142 mg/L) and 2009 (0.0163 mg/L) (Figure A-4). Cadmium was not detected in either Mormon B or C springs in 2009.
- **2007 Monitoring Wells** – Cadmium was not detected in TW-59 or TW-62 in 2009 (Figure A-15) Cadmium was detected in 2009 in TW-60 at an estimated concentration of 0.00049 mg/L and in TW-61 at an estimated concentration on 0.00011 mg/L.

4.3.2 Fluoride

Time-history plots of fluoride concentrations are included in Appendix B. The remediation goal for fluoride is 4 mg/L.

- **Northwest Pond Area** – Fluoride concentrations in the Northwest Pond wells have been stable since 2005. Fluoride concentrations have decreased gradually in TW-16 and TW-17 since the early 1990's and are currently stable, with 2009 concentrations of 2.0 mg/L and 1.5 mg/L, respectively. In TW-18, fluoride has been stable with all concentrations at 0.5 mg/L or less (Figure B-6). Fluoride concentrations in background well TW-29 are also stable at about 0.2 mg/L.
- **Old Underflow Solids Ponds Area** – Fluoride concentrations in the Old Underflow Solids Ponds area are stable or have decreased over the last five years. Fluoride concentrations are stable in TW-22 and TW-37, with 2009 fluoride concentrations of 3.03 mg/L and 9.29 mg/L, respectively. Fluoride is decreasing slowly in TW-24. The 2005 fluoride concentration in TW-24 was 6.42 mg/L. The fluoride concentration in TW-24 decreased to 4.63 mg/L in 2009. The fluoride concentration in LBZ well TW-45 is stable at 0.832 mg/L in 2009 (Figure B-7). Fluoride in background well TW-57 appears to have increased from 2005 (0.2 mg/L) to 2009 (0.432 mg/L).
- **Underflow Solids Piles Area** – Fluoride is stable in TW-48, TW-49, and TW-50 with concentrations less than about 1 mg/L (Figure B-8).
- **Old Hydroclarifier Area** – Fluoride concentrations at TW-43 and TW-44 are stable or decreasing slightly, with 2009 concentrations of 5.68 mg/L and 0.408 mg/L, respectively. Fluoride concentrations are decreasing at TW-40. The fluoride concentration decreased from 3.54 mg/L in 2005 to 2.92 mg/L in 2009 (Figure B-9).
- **South of the Plant Springs** - Fluoride concentrations are stable at Homestead Spring, with concentrations below 1.0 mg/L. Fluoride decreased at Mormon A Spring from 1996 (5.9 mg/L) to 2004 (1.9 mg/L). Fluoride increased from 2.25 mg/L in 2005 to 4.03 mg/L in 2009. (Figure B-4). Fluoride in Mormon B and C Springs are 2.04 mg/L and 2.38 mg/L, respectively, slightly higher than the September 2008 fluoride concentrations of 1.34 mg/L (Mormon B) and 1.57 mg/L (Mormon C).

- **2007 Monitoring Wells** – Fluoride concentrations in the 2007 wells have been stable since the wells were installed. In 2009, fluoride was detected in TW-59 (0.23 mg/L), TW-60 (0.248 mg/L), TW-61 (0.286 mg/L), and TW-62 (0.22 mg/L; Figure B-15).

4.3.3 Manganese

Time-history plots of manganese concentrations are included in Appendix C. The remediation goal for manganese is 0.18 mg/L.

- **Northwest Pond Area** - Manganese is stable at TW-16 at non-detected concentrations (less than 0.0015 mg/L). Manganese is increasing at TW-17 with a 2009 concentration of 2.81 mg/L. In TW-18, manganese is stable with a 2009 concentration of 0.396 mg/L (Figure C-6). Manganese is stable in background well TW-29 with a 2009 concentration of less than 0.0015 mg/L.
- **Old Underflow Solids Ponds Area** – Manganese is stable or decreasing slightly in TW-22 with a 2009 concentration of 0.784 mg/L. Manganese is stable at TW-24 and TW-37 with 2009 concentrations of 0.28 mg/L and 0.707 mg/L, respectively. In TW-45, manganese is stable with a 2009 concentration of 0.445 mg/L (Figure C-7). Manganese is stable in background well TW-57 with a 2009 concentration of less than 0.0013 mg/L.
- **Underflow Solids Piles Area** – In TW-48 and TW-49, manganese concentrations are stable. The 2009 manganese concentration in both wells is below the detection limit of 0.0015 mg/L. Manganese is increasing in TW-50, from a 2001 concentration of 0.41 mg/L to 0.61 mg/L in 2009 (Figure C-8).
- **Old Hydroclarifier Area** - Manganese appears stable in TW-40 and TW-43 with 2009 concentrations of 0.0266 mg/L, and 0.0054 mg/L, respectively (Figure C-9). Manganese in TW-44 is stable, with a concentration of 0.226 mg/L in 2009.
- **South of the Plant Springs** - In 2009, manganese was detected 0.0984 mg/L at Homestead Spring, an increase over previous concentrations of less than the detection limit to about 0.02 mg/L. This sudden increase may be anomalous. At Mormon A Spring, the manganese concentrations are stable, with a 2009 manganese concentration less than 0.0013 mg/L (Figure C-4). Manganese was detected at an estimated concentration of 0.0024 mg/L in Mormon B Spring, and was not detected in Mormon C Spring (less than 0.0013 mg/L).
- **2007 Monitoring Wells** – Manganese was detected all of the new wells. Since the wells were installed in 2007, manganese concentrations have been stable with the exception of TW-62. Manganese was detected at 0.004 mg/L in 2007. In 2008 and 2009, manganese concentrations in TW-62 increased to about 0.05 mg/L. The 2009 manganese concentrations in wells TW-59, TW-60, TW-61, and TW-62 are 0.009 mg/L, 6.27 mg/L, 0.507 mg/L, and 0.0473 mg/L, respectively (Figure C-15). The elevated concentrations of manganese in TW-60 and TW-61 indicate the presence of sodic groundwater upwelling from a deeper groundwater system (Golder 2007a). Sodic groundwater typically has higher manganese concentrations than fresh groundwater, and has been observed in other UBZ wells in the southwest corner of the plant (Golder 1995).

4.3.4 Nitrate

Time-history plots of nitrate as N concentrations are included in Appendix D. The remediation goal for nitrate as N is 10 mg/L.

- **Northwest Pond Area** – Nitrate concentrations have been stable in the Northwest Pond wells since 2005. Nitrate as N at TW-16 was 5.86 mg/L in 2005. The nitrate as N concentration is similar at 4.99 mg/L in 2009. Nitrate as N is stable in TW-17 and TW-18 with 2009 concentrations at both wells of less than the detection limit of 0.05 mg/L (Figure D-6). Nitrate is decreasing in background well TW-29 with a 2009 concentration of 4.44 mg/L. The 2005 nitrate as N concentration in TW-29 was 5.75 mg/L.
- **Old Underflow Solids Ponds Area** – In TW-22 and TW-37, as N nitrate as N concentrations have been stable since 2005 and are less than 10 mg/L. The 2009 nitrate as N concentration in TW-22 is 4.31 mg/L. The 2009 nitrate as N concentration in TW-37 is 9.37 mg/L. Nitrate as N is decreasing in TW-24, from a 2005 concentration of 6.24 mg/L to a concentration of 4.95 mg/L in 2009 (Figure D-7). The nitrate as N concentration in TW-45 is stable with a 2009 concentration of less than 0.05 mg/L (Figure D-10). Nitrate concentrations in background well TW-57 are stable with a 2009 concentration of 1.33 mg/L.
- **Underflow Solids Piles Area** – Nitrate as N concentrations have been stable since 2005 in TW-48, TW-49 and TW-50. In TW-48, the nitrate as N concentration is 4.77 mg/L in 2009. Nitrate as N has been stable in TW-49 and TW-50 with 2009 concentrations less than 4 mg/L (Figure D-8).
- **Old Hydroclarifier Area** – Nitrate as N concentrations in TW-40, TW-43, and TW-44 are stable or decreasing. Nitrate as N concentrations in TW-43 have decreased from a 2005 concentration of 14.5 mg/L to a 2009 concentration of 11.9 mg/L. In TW-40 and TW-44, nitrate as N is relatively stable with 2009 concentrations of 19.3 mg/L and less than the detection limit of 0.05 mg/L, respectively (Figure D-9).
- **South of the Plant Springs** – Since 2005, nitrate as N concentrations have been stable in Mormon A Spring and Homestead Spring. Nitrate as N concentrations have been stable since 2005 (9.35 mg/L) in Homestead Spring. The 2009 nitrate as N concentration at Homestead Spring is 8.85 mg/L. Nitrate as N in Mormon A Spring was (9.45 mg/L) in 2005. The 2009 nitrate as N concentration is similar (9.05 mg/L; Figure D-4). The 2009 nitrate as N concentrations in Mormon B and C Springs are 6.28 mg/L and 8.69 mg/L, respectively.
- **2007 Monitoring Wells** – Nitrate as N concentrations have been stable in TW-60, TW-61, and TW-62 since the wells were installed in 2007. Nitrate as N may be decreasing slightly in TW-59. The 2007 nitrate as N concentration in TW-59 was 5.76 mg/L. The 2009 nitrate as N concentration in TW-59 is 5.03 mg/L. Nitrate as N was also detected in TW-62 at 5.41 mg/L in 2009, similar to previous nitrate as N concentrations of about 5 to 6 mg/L. Nitrate as N was not detected in TW-60 or TW-61 in 2009.

4.3.5 Selenium

Time-history plots of selenium concentrations are included in Appendix E. The remediation goal for selenium is 0.05 mg/L.

- **Northwest Pond Area** – Selenium is stable or decreasing in the Northwest Pond wells. Selenium decreased in TW-16 from 0.252 mg/L in 2005 to 0.132 mg/L in 2009. Selenium is stable in TW-17 and TW-18 at 2009 concentrations of 0.0072 mg/L (estimated) and less than 0.0006 mg/L, respectively (Figure E-6). Selenium is also stable in background well TW-29 at a 2009 concentration of 0.0092 mg/L.
- **Old Underflow Solids Ponds Area** – Since 2005, selenium concentrations in the Old Underflow Solids Ponds wells have been stable or decreasing. Selenium decreased in TW-22 from 0.197 mg/L in 2005 to 0.131 mg/L in 2009. The 2005 selenium concentration in TW-24 was 0.359 mg/L. In TW-24, selenium decreased by an order of

magnitude from 2005 to 2006. This decrease appears to represent an anomalous value. In 2009, the selenium concentration at TW-24 was 0.234 mg/L, within the previously observed range of 0.2 to 0.5 mg/L (excluding 2006). In TW-37, the selenium concentration was 0.493 mg/L in 2005. The selenium concentration decreased to 0.230 mg/L in 2009. In TW-45, selenium is stable with a 2009 concentration of less than 0.0006 mg/L (Figure E-7). Selenium concentrations in background well TW-57 are stable, with a 2009 concentration of 0.0039 mg/L.

- **Underflow Solids Piles Area** – Selenium is stable at TW-48, TW-49 and TW-50 with 2009 estimated concentrations of 0.0016 mg/L, 0.0047 mg/L and 0.0463 mg/L, respectively (Figure E-8).
- **Old Hydroclarifier Area** – Over the last five years, selenium concentrations in the Old Hydroclarifier area wells are stable or decreasing. Selenium concentrations in TW-40 have decreased from 2005 when a concentration of 0.75 mg/L was observed. The 2009 selenium concentration is 0.571 mg/L. Selenium decreased in TW-43 from 2005 (1.06 mg/L) to 0.578 mg/L in 2009. Selenium appears relatively stable in TW-44 with concentrations of mostly non-detects (less than 0.003 mg/L) throughout the monitoring period (Figure E-9).
- **South of the Plant Springs** - Selenium concentrations are stable at Homestead Spring with a 2009 concentration of 0.0164 mg/L. Selenium is also stable in Mormon A Spring. The 2005 selenium concentration in Mormon A Spring was 0.258 mg/L. The 2009 selenium concentration is similar at 0.256 mg/L. (Figure E-4). The 2009 selenium concentrations in Mormon B and C Springs are 0.158 mg/L and 0.172 mg/L, respectively.
- **2007 Monitoring Wells** – Selenium was detected in the three of the four new wells installed south of the Southern Boundary Wells. The selenium concentrations increased in TW-59 from 0.0321 mg/L in 2007 to 0.124 mg/L and 0.129 mg/L in June and September 2008, respectively. The 2009 selenium concentration in TW-59 is similar (0.107 mg/L). In TW-62, the selenium concentration increased from 0.0456 mg/L in 2007 to 0.149 mg/L in June 2008. A similar concentration of 0.155 mg/L was observed in September 2008. The 2009 selenium concentration in TW-62 is 0.132 mg/L. Selenium was not detected in June 2009 in TW-60 (less than 0.0006 mg/L). Selenium was detected in TW-61 at an estimated concentration of 0.0009 mg/L in 2009. Long-term data are not available to evaluate selenium trends in these wells.

4.3.6 Chloride

Time-history plots of chloride concentrations are included in Appendix F. There is no remediation goal for chloride.

- **Northwest Pond Area** – Chloride has increased in TW-16 from 64 mg/L in 2005 to 92 mg/L in 2009. Chloride has also increased in background well TW-29 between 2005 (51 mg/L) and 2009 (85 mg/L). The concentration of chloride in TW-17 is stable, with a concentration of 127 mg/L in June 2008. The 2009 chloride concentration of 2 mg/L appears to be anomalous. Chloride is stable in TW-18 with a concentration of 16.2 mg/L in 2009 (Figure F-6). Chloride in background well TW-29 has increased from 51 mg/L in 2005 to 85 mg/L in 2009.
- **Old Underflow Solids Ponds Area** – Chloride is stable at TW-22 and TW-45 with 2009 concentrations of less than 50 mg/L. In TW-24, the chloride concentration decreased from 142 mg/L in 2005 to 80 mg/L in 2009. From 2005 to 2009, the concentration of chloride increased in TW-37 from 77 mg/L to 508 mg/L (Figure F-7). Chloride is stable in background well TW-57 at about 15 mg/L.
- **Underflow Solids Piles Area** – Chloride is stable in TW-48 and TW-49 with concentrations less than 50 mg/L. Chloride has been slowly increasing in TW-50 since 1999 (150 mg/L). The 2009 chloride concentration in TW-50 is 213 mg/L (Figure F-8).

- **Old Hydroclarifier Area** – Chloride is stable in TW-40, TW-43 and TW-44. The 2009 chloride concentrations in TW-40 and TW-43 are 446 mg/L and 310 mg/L, respectively. Chloride has been stable in TW-44 throughout the monitoring period with a 2009 concentration of 27 mg/L (Figure F-9).
- **South of the Plant Springs** - Chloride is stable in Mormon A Spring at about 119 mg/L in 2009. Chloride in Homestead Spring is stable at 30 mg/L 2009 (Figure F-4). The 2009 chloride concentrations in Mormon B and C Springs are 128 mg/L and 73 mg/L, respectively.
- **2007 Monitoring Wells** – Chloride was detected in the new wells installed south of the Southern Boundary Wells. The 2009 concentrations are 64.2 mg/L (TW-59), 18.1 mg/L (TW-60), 24.3 mg/L (TW-61) and 76 mg/L (TW-62; Figure F-15). Chloride has been stable in all four wells since they were installed in 2007.

4.3.7 Molybdenum

Time-history plots of molybdenum concentrations are included in Appendix G. There is no remediation goal for molybdenum.

- **Northwest Pond Area** - Molybdenum is stable or decreasing in TW-16 and TW-17 at concentrations less than 0.05 mg/L. In TW-18, the molybdenum concentration is stable and is 0.0123 mg/L in 2009 (Figure G-6). Molybdenum is also decreasing in background well TW-29 with a 2009 concentration of 0.0017 mg/L.
- **Old Underflow Solids Ponds Area** – Over the last five years, the molybdenum concentrations in the Old Underflow Solids area wells have been stable or decreasing. The molybdenum concentrations are decreasing in TW-22 and TW-24. The 2005 molybdenum concentrations in TW-22 and TW-24 were 0.338 mg/l and 0.829 mg/L, respectively. In 2009, the concentrations decreased to 0.244 mg/L in TW-22 and 0.322 mg/L in TW-24. Molybdenum is also decreasing in TW-37 with concentrations less than 0.5 mg/L since 1997. The 2009 molybdenum concentration is 0.242 mg/L. Molybdenum is stable at TW-45 with concentrations below 0.05 mg/L since 1992 (Figure G-7). Molybdenum is also stable at background well TW-57 with a 2009 concentration of 0.0095 mg/L.
- **Underflow Solids Piles Area** – Molybdenum is stable in TW-48 and TW-49, with concentrations in both wells remaining less than 0.05 mg/L since 1993. At TW-50, molybdenum has decreased from 0.0432 mg/L in 2005 to 0.0256 mg/L in 2009 (Figure G-8).
- **Old Hydroclarifier Area** – Molybdenum is decreasing at TW-43 and stable at TW-40 with concentrations in both wells less than 0.20 mg/L since 1993. Molybdenum is stable at TW-44 at less than 0.05 mg/L (Figure G-9).
- **South of the Plant Springs** - Molybdenum is stable at Homestead Spring, and was detected in 2009 at an estimated concentration of 0.0045 mg/L. Mormon Spring has increasing molybdenum concentrations. The 2005 molybdenum concentration was 0.0495 mg/L. Molybdenum increased to 0.0785 mg/L in 2009 (Figure G-4). The 2009 molybdenum concentration in Mormon B and C Springs are 0.0239 mg/L and 0.0248 mg/L, respectively.
- **2007 Monitoring Wells** – Molybdenum was detected in the new wells installed south of the Southern Boundary Wells. The 2009 estimated concentrations are 0.0043 mg/L (TW-59), 0.0041 mg/L (TW-60), 0.0019 mg/L (TW-61) and 0.0056 mg/L (TW-62; Figure G-15). Molybdenum concentrations in all four wells appear to have decreased slightly since the wells were installed in 2007.

4.3.8 Sulfate

Time-history plots of sulfate concentrations are included in Appendix H. There is no remediation goal for sulfate.

- **Northwest Pond Area** - Sulfate is stable at TW-16, TW-17, and TW-18 at concentrations less than 250 mg/L in both wells (Figure H-6). Sulfate concentrations in background well TW-29 are stable at about 90 to 100 mg/L.
- **Old Underflow Solids Ponds Area** – Sulfate is stable at TW-22 and TW-24 with 2009 concentrations of 130 mg/L and 179 mg/L, respectively. Sulfate appears to stable in TW-37 since 2005 (351 mg/L), with a 2009 concentration of 317 mg/L. In TW-45, sulfate is stable with a concentration of 113 mg/L in 2009 (Figure H-7). Sulfate appears to be decreasing slightly in background well TW-57. The 2005 sulfate concentration was 80 mg/L. The 2009 concentration decreased to 69 mg/L.
- **Underflow Solids Piles Area** – Sulfate is stable and typically below 100 mg/L in TW-48 and TW-49. Sulfate is slowly increasing in TW-50 with a 2009 concentration of 452 mg/L (Figure H-8).
- **Old Hydroclarifier Area** – Sulfate is slowly decreasing or stable in TW-43. The 2005 concentration was 687 mg/L. The 2009 sulfate concentration in TW-43 was 654 mg/L. Since 2005, sulfate concentrations have increased from 758 mg/L to 860 mg/L in 2009 in TW-40. Sulfate is increasing slightly at TW-44 with a 2009 concentration of 97.4 mg/L (Figure H-9).
- **South of the Plant Springs** – The sulfate concentration at Mormon Spring has increased from 416 mg/L in 2005 to 466 mg/L in 2009. Sulfate is stable at Homestead Spring with a 2009 concentration of 103 mg/L (Figure H-4). The 2009 sulfate concentration at Mormon B and C Springs are 270 mg/L and 313 mg/L, respectively.
- **2007 Monitoring Wells** – Sulfate was detected in the new wells installed south of the Southern Boundary Wells. The June 2008 concentrations are 272 mg/L (TW-59; average of two duplicate samples), 75 mg/L (TW-60), 97.2 mg/L (TW-61) and 344 mg/L (TW-62; Figure H-15). Sulfate is stable at these wells since they were installed in 2007.

5.0 CONCENTRATION TRENDS

This section describes both the short-term (2005 to 2009) and long-term (1991 to 2007) concentration trends for the constituents of concern (cadmium, fluoride, manganese, nitrate, and selenium) and for chloride, molybdenum, and sulfate in the source area wells and in downgradient well and spring point of compliance locations.

5.1 Source Areas

The source areas are:

- Old Underflow Solids Ponds (UBZ-2)
- Northwest Pond (UBZ-4)
- Old Hydroclarifier (UBZ-4)

Additional details on these source areas including a description of the closure of each, is included in Golder (1995). A statistical evaluation of concentration trends in these areas was completed as part of the 5-year review process (Golder 2003a; Golder 2008a). The 2008 5-year review included a statistical analysis of the data collected between 1991 and 2007. This evaluation of the concentration trends in the source areas is based on visual evaluation of chemical hydrographs using data collected between 2005 and 2009 and the statistical analyses for data collected between 1991 and 2007 completed for the 2008 5-year review (Golder 2008a). Table 10 summarizes the evaluation of long-term concentration trends in the source areas, and Table 11 summarizes the evaluation of long-term concentration trends in the point of compliance locations.

5.1.1 Old Underflow Solids Ponds

Wells in the Old UFS Ponds source area are TW-22, TW-24, and TW-37 in UBZ-2 and TW-45 in LBZ-2. TW-57 provides information on background groundwater quality in UBZ-2, upgradient of the Old UFS Ponds. The well locations are shown on Figure 2 (UBZ) and Figure 3 (LBZ).

In the Old Underflow Solids area wells, the long- and short-term concentration trends for the constituents of concern as follows:

- Cadmium is stable or decreasing in all wells except for long- and short-term increases in TW-37
- Fluoride is stable or decreasing in all wells except for a short-term increase in background well TW-57
- Manganese is stable or decreasing in all wells
- Nitrate is stable or decreasing in all wells except for TW-37, where a long-term increase is observed, but the short-term trend is stable
- Selenium is stable or decreasing in all wells
- Chloride is stable or decreasing in all wells except for long- and short-term increases in TW-37

- Molybdenum is stable or decreasing in all wells
- Sulfate is stable or decreasing in all wells except TW-37, where there is a long-term increasing concentration trend. The short-term sulfate concentration trend in TW-37 is stable

The stable or decreasing concentration trends for all constituents of concern in the Old Underflow Solids Ponds area (except cadmium and nitrate, along with chloride and sulfate in TW-37) suggests that natural attenuation is occurring in the Old Underflow Solids Ponds area. Concentrations of chloride in TW-37 may be increasing because of dust control activities at the Plant. Increasing chloride concentrations may result in mobilization of cadmium as cadmium chloride complexes, resulting in increased cadmium concentrations (Appendix J).

5.1.2 Northwest Pond

Wells in the Northwest Pond source area are TW-16 and TW-17 in UBZ-4 and TW-18 in LBZ-4. TW-29 provides information on background groundwater quality in UBZ-4, upgradient of the Northwest Pond. The well locations are shown on Figure 2 (UBZ) and Figure 3 (LBZ).

In the Northwest Pond area wells, the long- and short-term concentration trends for the constituents of concern as follows:

- Cadmium is stable or decreasing in all wells
- Fluoride is stable or decreasing in all wells
- Manganese is stable or decreasing in all wells, except long-term and short-term increasing concentration trends in TW-17
- Nitrate is stable or decreasing in all wells
- Selenium is stable or decreasing in all wells
- Chloride is stable or decreasing in all wells except for long-term and short-term increases in background well TW-29, and a short-term increase in TW-16
- Molybdenum is stable or decreasing in all wells
- Sulfate is stable or decreasing in all wells

The stable or decreasing concentration trends for all constituents of concern (except manganese in TW-17) suggests that natural attenuation is occurring in the Northwest Pond area. Concentrations of chloride in background well TW-29 and in TW-16 may be increasing because of dust control activities at the Plant (Appendix J). The reason for the increase in manganese concentrations in TW-17 is uncertain.

5.1.3 Old Hydroclarifier

Wells in the Old Hydroclarifier source area are TW-40, TW-42 (not sampled), and TW-43 in UBZ-4 and TW-44 in LBZ-4. TW-29 provides information on background groundwater quality in UBZ-4, upgradient of the Old Hydroclarifier and NW Pond. The well locations are shown on Figure 2 (UBZ) and Figure 3 (LBZ).

- Cadmium is stable or decreasing in all wells
- Fluoride is stable or decreasing in all wells
- Manganese is stable or decreasing in all wells
- Nitrate is stable or decreasing in all wells except for long-term increase in TW-40. The short-term concentration trend in TW-40 is stable
- Selenium is stable or decreasing in all wells
- Chloride is stable or decreasing in all wells except for long-term increases in TW-44. Chloride is also increasing (long-term and short-term) in UBZ-4 background well TW-29
- Molybdenum is stable or decreasing in all wells
- Sulfate is stable in TW-43, but increasing (long-term and short-term) in TW-40 and TW-44

The stable or decreasing concentration trends for all constituents of concern except nitrate and chloride in TW-40 suggests that natural attenuation is occurring in the Old Hydroclarifier area.

5.2 Downgradient Concentration Trends

The locations downgradient of the source areas are:

- Plant Production wells PW-01, PW-02, and PW-03 downgradient of the Northwest Pond and Old Hydroclarifier (UBZ-4)
- South Fence Line Wells TW-20, TW-34, TW-35, and TW-39 downgradient of the Old Underflow Solids Ponds (UBZ-2)
- Southern Boundary Wells TW-53, TW-54, TW-55, the Harris Well; and Mormon A Spring, downgradient of the Old Underflow Solids Ponds (UBZ-2)
- Soda Creek (surface water)

The well and spring locations are shown on Figure 2. The long- and short-term concentration trends are summarized in Table 11.

5.2.1 Plant Production Wells

The Plant production well locations are shown on Figure 2. In the Plant production wells, the long- and short-term concentration trends for the constituents of concern as follows:

- Cadmium has been decreasing in all wells between 1991 and 2007. PW-01 and PW-02 cadmium concentrations have increased between 2005 and 2009, while cadmium concentrations in PW-03 have been stable
- Fluoride is stable in all wells
- Manganese is stable in all wells
- Nitrate is stable in all wells
- Selenium has been stable in all wells
- Chloride has been stable in all wells between 1991 and 2007, but increasing in all wells between 2005 and 2009

- Molybdenum is stable in PW-03. Molybdenum is increasing in PW-02. In PW-01, molybdenum has been stable from 1991 to 2007 but increasing from 2005 to 2009
- Sulfate has been stable in all of the Plant production wells from 1991 to 2007, but is increasing in all of the Plant production wells from 2005 to 2009

The long-term stable or decreasing concentrations of the constituents of concern and chloride, molybdenum, and sulfate in the Plant production wells (with the exception of molybdenum in PW-02) suggests that natural attenuation is occurring in the source areas (Northwest Pond and Old Hydroclarifier). There are short-term increases in cadmium concentrations in PW-01 and PW-02. Concentrations of chloride and sulfate have increased since 2005 in all three production wells. Chloride concentrations may be increasing because of increasing concentrations of chloride in background well TW-29 and in TW-16, which may be related to dust control activities at the Plant. There is also a short-term increase in molybdenum concentrations in PW-01.

5.2.2 South Fence Line Wells

In the South fence Line wells (Figure 2), the long- and short-term concentration trends for the constituents of concern as follows:

- Long-term and short-term cadmium concentrations are stable or decreasing in all wells except for a short-term increase in TW-39. Cadmium concentrations have increased in TW-39 between 2005 and 2009.
- Long-term and short-term fluoride concentrations are stable or decreasing in all wells except TW-39. Fluoride concentrations have increased in TW-39 between 2005 and 2009.
- Manganese is stable or decreasing in all wells
- Long-term and short-term nitrate concentrations are stable or decreasing in all wells
- Selenium has been stable or decreasing in all wells between 1991 and 2007. TW-39 selenium concentrations have increased between 2005 and 2009, while selenium concentrations in the other South Fence Line wells have been stable or decreasing.
- Long-term and short-term chloride concentrations are stable or decreasing in all wells except TW-39. Nitrate concentrations have increased in TW-39 between 2005 and 2009.
- Long-term and short-term molybdenum concentrations are stable or decreasing in all wells except TW-39. Molybdenum concentrations have increased in TW-39 between 2005 and 2009.
- Sulfate has been stable or decreasing in all wells from 1991 to 2007 except for an increasing concentration trend in TW-35. From 2005 to 2009, sulfate is stable or decreasing in all wells except for an increasing trend in TW-39.

The long-term stable or decreasing concentrations of the constituents of concern (and chloride, molybdenum, and sulfate) in the South Fence Line wells suggests that natural attenuation is occurring in the source area (Old Underflow Solids Ponds). There are short-term increases in the concentrations of cadmium, fluoride, and selenium in TW-39 (and chloride, molybdenum, and sulfate), which may be related to a past intermittent release at the source area.

5.2.3 Southern Boundary Wells

The Southern Boundary Wells are shown on Figure 2. Groundwater discharge at Mormon A Spring is representative of groundwater quality in the UBZ south of the Plan Fence Line and is also discussed in this section. In the Southern Boundary wells, the long- and short-term concentration trends for the constituents of concern as follows:

- Long-term and short-term cadmium concentrations are stable or decreasing in all wells. In Mormon A Spring, cadmium concentrations were stable between 1991 and 2007 but have an increasing trend from 2005 to 2009
- Long-term fluoride concentrations are stable or decreasing in all wells and in Mormon A Spring. Between 2005 and 2009, fluoride concentrations are increasing in all wells and Mormon A Spring
- Manganese is stable in all wells
- Long-term and short-term nitrate concentrations are stable in all wells, except for a short-term increase in TW-53. There is a long-term increase in nitrate concentrations in Mormon A Spring, but nitrate concentrations are stable between 2005 and 2009
- Long-term and short-term selenium concentrations are stable or decreasing in all wells, except for a short-term increase in TW-53. There is a long-term increase in selenium concentrations in Mormon A Spring, but selenium concentrations are stable between 2005 and 2009
- Long-term and short-term chloride concentrations are stable or decreasing in all wells. Chloride concentrations were stable in Mormon A Spring between 1991 and 2007, but have increased between 2005 and 2009
- Long-term molybdenum concentrations are stable or decreasing in all wells except TW-53. Molybdenum concentrations are stable or decreasing in TW-53 and TW-55 between 2005 and 2009, but are increasing in TW-54, the Harris Well, and Mormon A Spring
- Long-term (1991 to 2007) sulfate concentrations were stable in TW-54 and TW-55, but increasing in TW-53, the Harris Well, and Mormon A Spring. Short-term (2005-2009) sulfate concentrations are stable or decreasing in TW-54, TW-55, and the Harris well, but increasing in TW-53 and Mormon A Spring.

The long-term stable or decreasing concentrations of the constituents of concern (and chloride, molybdenum, and sulfate) in the Southern Boundary wells (except for molybdenum and sulfate in TW-53) suggests natural attenuation is occurring in the source area (Old Underflow Solids Ponds). There are short-term increases in the concentrations of fluoride in all of the Southern Boundary Wells. This is likely related to the migration of elevated fluoride that was observed in the South Fence Line Wells in 2006 (TW-20) and 2008 and 2009 (TW-39). Future fluoride concentrations are expected to decline, consistent with TW-20. There are also short-term increases in nitrate, selenium and sulfate in TW-53, and molybdenum in TW-54.

In Mormon A Spring, concentrations of nitrate, selenium, and sulfate have long- and short-term increasing trends, and cadmium, fluoride, chloride, and molybdenum have short-term increasing trends. Future concentrations are expected to decrease at Mormon A Spring because of stable or decreasing

concentrations (with the exception of cadmium and chloride) in the source area (Old Underflow Solids Ponds).

5.2.4 Soda Creek

Since monitoring began in Soda Creek in 2001, concentrations of the constituents of concern and chloride, molybdenum, and sulfate have been stable, with the exception of naturally occurring increasing manganese concentrations in Soda Creek upstream of the effluent discharge. There are short-term increases in concentrations of fluoride, nitrate, selenium, and sulfate in Soda Creek downstream of the effluent discharge and irrigation weir. This is likely related to increasing concentrations of these constituents in Mormon A Spring and Mormon Creek, which discharges to Soda Creek below the diversion weir. Sulfate is also increasing in the effluent discharge between 2005 and 2009 and may contribute to increasing sulfate concentrations in Soda Creek.

6.0 OVERALL ASSESSMENT

This section summarizes the remediation goals at the Monsanto Plant site and trends in constituent concentrations.

6.1 Remediation Goals

The following is a summary of the remediation goals for the point of compliance locations (wells and surface water) located at the southern boundary or south of the Monsanto Plant. Table 12 provides a summary of the results from all point of compliance locations in May and June 2009 compared to corresponding remediation goals.

- Cadmium is below the remediation goal of 0.005 mg/L in the point of compliance locations in 2009 except in PW-01, PW-02, and TW-39. The 2009 cadmium concentrations in PW-01, PW-02, and TW-39 are 0.0589 mg/L, 0.006 mg/L, and 0.0169 mg/L (average of two duplicate samples), respectively
- Fluoride is below the remediation goal of 4 mg/L in all point of compliance locations in 2009, except in the Harris Well (6.48 mg/L) and possibly TW-54 where a concentration of 4.21 mg/L was measured by the primary laboratory (SVL), and a concentration of 2.8 mg/L was measured by the split laboratory (ARI)
- Manganese is at or below the remediation goal of 0.18 mg/L in all point of compliance locations in 2009 except in Soda Creek at the Soda Up station (0.207 mg/L). The elevated manganese concentration in Soda Creek represents background sodic water conditions
- Nitrate as N is below the remediation goal of 10 mg/L in all point of compliance locations in 2009
- Selenium is below the remediation goal of 0.05 mg/L in 2009 in point of compliance wells PW-02, PW-03, PW-04, TW-34, TW-35, TW-55, and in Soda Creek upstream of the effluent discharge. In 2009, selenium exceeds the remediation goal of 0.05 mg/L in point of compliance wells PW-01 (0.0687 mg/L), TW-20 (0.0994 mg/L), TW-39 (0.423 mg/L; average of two duplicate samples), TW-53 (0.199 mg/L), TW-54 (0.136 mg/L), and the Harris Well (0.244 mg/L). Selenium is also above the remediation goal in the Soda Down station in 2009 (0.0694 mg/L)

6.2 Constituent Trends

Constituent trends for the point of compliance wells are based on a visual interpretation of data from 2005 through 2009. Constituent trends for the source area wells are based on long-term concentration trends (i.e. 1991 to 2007) summarized from the Second Five-Year Report (Golder 2008). Short-term concentration trends in the source area wells are based on the period 2005 to 2009.

6.2.1 Source Areas

6.2.1.1 Constituents of Concern

Long-term concentration trends for the constituents of concern in the source areas are decreasing or stable in the source areas with the following exceptions (Table 10):

- Cadmium and nitrate as N are increasing in TW-37 in the Old Underflow Solids Pond area
- Nitrate as N is increasing in TW-40 in the Old Hydroclarifier area
- Manganese is increasing in TW-17 in the Northwest Pond area

In the short term (2005 to 2009), the constituents of concern are either decreasing or stable in the source areas with the following exceptions (Table 9):

- Cadmium in TW-37 (Old Underflow Solids Ponds) increased from 0.452 mg/L in 2005 to 0.694 mg/L in 2009
- Manganese increased from 2.54 mg/L in 2005 to 2.81 mg/L in 2009 in TW-17 in the Northwest Pond area

6.2.1.2 Other Constituents

Long-term concentration trend for other constituents (chloride, molybdenum, and sulfate) are decreasing or stable with the following exceptions (Table 10):

- Chloride is increasing in TW-37 in the Old Underflow Solids Ponds area and TW-44 in the Old Hydroclarifier area. Chloride is also increasing in background well TW-29 in the Northwest Pond area
- Molybdenum is increasing in TW-18
- Sulfate is increasing in TW-37 in the Old Underflow Solids Pond area and in TW-40 and TW-44 in the Old Hydroclarifier area

In the short term (2005 to 2009), concentrations of chloride, molybdenum, and sulfate are either decreasing or stable in the source areas with the following exceptions (Table 9):

- Chloride is increasing in TW-16 (Northwest Pond), and TW-37 (Old Underflow Solids Ponds). In TW-16, chloride concentrations increased from 64 mg/L in 2005 to 91.8 mg/L in 2009. It is noteworthy that chloride concentrations in background well TW-29 also increased over the same period, from 51 mg/L (2005) to 85.3 mg/L (2009). Chloride concentrations TW-37 increased from 24.9 mg/L and 77 mg/L, respectively, in 2005 to 80.4 mg/L and 508 mg/L, respectively, in 2009.
- Sulfate is increasing in TW-16 (Northwest Pond), and in TW-40 and TW-44 (Old Hydroclarifier). In TW-16, sulfate increased from 181 mg/L in 2005 to 197 mg/L in 2009. Sulfate concentrations in TW-40 and TW-44 increased from 758 mg/L and 81 mg/L, respectively, in 2005, to 860 mg/L and 97.5 mg/L, respectively, in 2009.

6.3 Point of Compliance Locations

Constituents of concern are stable or decreasing at point of compliance locations with the following exceptions (Table 8). Note that Mormon A Spring is not a required point of compliance location under the Record of Decision, but is considered representative of shallow groundwater discharge (in proximity to the Harris Well) to surface water at the head of Mormon Creek:

- Cadmium is increasing in Mormon A Spring, PW-01, PW-02, and TW-39. Cadmium in Mormon A Spring increased from 0.0142 mg/L in 2005 to 0.0163 mg/L in 2009. In PW-01, cadmium increased from a 2005 concentration of 0.0435 mg/L to 0.0589 mg/L in 2009. In PW-02, cadmium increased from 0.0035 mg/L in 2005 to 0.006 mg/L in 2006. In

TW-39, cadmium increased from 0.013 mg/L in 2005 to a 2009 concentration of 0.0168 mg/L

- Fluoride is increasing in TW-39, located at the Plant Fence Line. In TW-39, fluoride concentrations increased from 2005 (2.05 mg/L) to 2009 (3.76 mg/L). Fluoride is also increasing slightly at Mormon A Spring, from 2.25 mg/L in 2005 to 4.03 mg/L in 2009. Fluoride increased in the Harris Well from 2.58 mg/L in 2005 to 6.48 mg/L in 2009. Fluoride is increasing in Southern Boundary Wells TW-53, TW-53, and TW-55. In TW-53, fluoride concentrations increased from 2.04 mg/L in 2005 to 3.65 mg/L in 2009. Fluoride concentrations increased from 2.27 mg/L in 2005 to 4.21 mg/L in 2009 in TW-54. In TW-55, fluoride concentrations increased from 0.2 mg/L in 2005 to 1.48 mg/L in 2009.
- Manganese is increasing in Soda Creek upstream (Soda Up station) of the effluent discharge. Upstream of the effluent discharge, manganese has increased from 0.0789 mg/L in 2005 to 0.207 mg/L in 2009.
- Nitrate as N is increasing in Southern Boundary Well TW-53 and in Soda Creek downstream of the effluent discharge (Soda Down station). Nitrate as N increased from 5.35 mg/L in 2005 to 6.0 mg/L in 2009 in TW-53. In Soda Creek downstream of the effluent discharge (Soda Down station), nitrate as N increased from 0.7 mg/L in 2005 to 2.14 mg/L 2009.
- Selenium is increasing in, TW-39 (Plant Fenceline) and Soda Creek at the Soda Down station. In TW-39, selenium increased from 0.139 mg/L in 2005 to 0.432 mg/L in 2009. In Soda Creek at the Soda Down station increased from 0.026 mg/L in 2005 to 0.0694 mg/L in 2009. This reach of Soda Creek is flow impaired because of power and irrigation diversions. Although not point of compliance locations, selenium concentrations are stable and below the remedial goal in the effluent discharge and at the sampling station on Soda Creek immediately below the discharge (Soda Weir).

Other constituents are stable or decreasing at the point of compliance wells with the following exceptions:

- Chloride is increasing in the plant production wells (PW-01, PW-02, and PW-03), TW-39 (Plant Fenceline), and Mormon A Spring
- Molybdenum is increasing in Plant Production Wells PW-01 and PW-02, in TW-54 (Southern Boundary), in the Harris Well, and in Mormon A Spring
- Sulfate is increasing in PW-01, PW-02, and PW-03, in TW-39 at the Plant Fence Line, in TW-53 (Southern Boundary), in Mormon A Spring, and in the Soda Down station

6.4 Assessment of 2009 Water Quality Data

6.4.1 UBZ-4

The groundwater elevation data indicate that pumping at the plant production wells (PW-1, PW-2, and PW-3) is containing the plume from the Northwest Pond and the Old Hydroclarifier areas in UBZ-4. The source areas in UBZ-4 (Northwest Pond and Old Hydroclarifier) were remediated in the 1980's.

In the point of compliance wells, cadmium exceeds the remediation goal in PW-01 and PW-02, but is below the remediation goal in PW-03. Selenium exceeds the remediation goal in PW-01, but remains below the remediation goal in PW-02 and PW-03. Fluoride, manganese, and nitrate as N remain below the remediation goals in all UBZ-4 point of compliance wells. With the exception of cadmium and selenium in PW-01, concentrations of the constituents of concern in the point of compliance wells are stable or decreasing.

In other UBZ-4 wells, the concentrations of the constituents of concern in UBZ-4 are generally decreasing or stable, consistent with monitored natural attenuation. The exceptions are:

- Manganese in TW-17 (Northwest Pond) and TW-50 (UFS Piles)
- Nitrate as in TW-40 (Old Hydroclarifier) and TW-48 (UFS Piles)

Concentrations in the UBZ-4 source areas (Old Hydroclarifier and Northwest Pond) are generally decreasing. Thus, concentrations in downgradient wells are expected to continue to decrease with time, consistent with natural attenuation.

Chemical isopleth maps for the constituents of concern, chloride, molybdenum, and sulfate in June 2009 concentrations of are shown on Figures 7 through 14, inclusive. The chemical isopleths maps indicate the extent of groundwater with constituents of concern concentrations above the remediation goals in UBZ-4 is between the Northwest Pond and Old Hydroclarifier source areas and production well PW-01. Affected groundwater is contained by pumping of the plant production wells and has not migrated outside of the plant boundaries. The 2009 isopleths in UBZ-4 are similar to the 2002 and 2007 isopleths presented in the Second Five-Year Review Report (Golder, 2008) and indicate the plumes are stable or have decreased slightly and are being contained by pumping from PW-01, PW-02, and PW-03.

6.4.2 UBZ-1 and UBZ-2

The primary UBZ-2 source area (Old Underflow Solids Ponds) was closed and capped in the 1980's, along with minor source areas such as the old coke and quartzite ponds and the unlined non-contact cooling water ponds. The concentrations of constituents of concern are generally decreasing or stable in the source areas and at the point of compliance locations, consistent with monitored natural attenuation. The exceptions are:

- Cadmium is increasing in TW-39 (Plant Fenceline), TW-37 (Old UFS Ponds) and Mormon A Spring
- Fluoride is increasing in TW-39 (Plant Fenceline), TW-53, TW-54, and TW-55 (Southern Boundary), the Harris Well and Mormon Spring, and Soda Down
- Manganese is increasing in Soda Creek
- Nitrate as N is increasing in TW-37 (Old UFS Ponds), TW-39 (Plant Fenceline), TW-53 (Southern Boundary), Mormon A Spring, and in Soda Creek at the Soda Down station (Figure 2)
- Selenium is increasing in Soda Creek at the Soda Down station (where the creek is flow-impaired because of upstream power and irrigation diversions)

Concentrations in the UBZ-2 source area (Old Underflow Solids Ponds) are generally decreasing. Thus, concentrations in downgradient wells are expected to decrease in the future, consistent with natural attenuation. There may be some short-term concentration increases in the source area as a result of increased infiltration of precipitation during periods of above-average precipitation.

Chemical isopleth maps for the constituents of concern, chloride, molybdenum, and sulfate in June 2009 are shown on Figures 7 through 14, inclusive. Figure 7 indicates that groundwater with cadmium concentrations above the remediation goal in UBZ-2 extends to the plant fenceline (Well TW-39), but does not extend to the Southern Boundary Wells, similar to the 2007 isopleth map presented in the Second Five Year Review Report (Golder 2008a), and a slight decrease in area from the 2002 isopleth map, when cadmium concentrations above the remediation goal extended to the Southern Boundary Wells (TW-54).

The extent of groundwater with selenium above the remediation goal in 2009 increased in comparison to 2007 (Golder 2007b, Golder 2008b). The extent of groundwater with selenium concentrations above the remediation goal in 2009 (Figure 11) in UBZ-2 extends south of the Plant Fenceline, beyond the Southern Boundary wells to monitoring wells TW-62 and TW-59 on the east side of Government Dam Road.

The Subsidiary Fault separates UBZ-1 and UBZ-2 in the southeast corner of the plant, north of TW-10 (Figure 5). South of TW-10, the offset on the Subsidiary Fault appears to decrease, similar to the decrease in offset observed in the Monsanto Fault south of the Plant Fenceline and Southern Boundary Wells (Golder 1995). The decrease in offset appears to allow groundwater flow from UBZ-2 to UBZ-1 (Figure 5), resulting in discharge of groundwater from UBZ-2 to springs such as Mormon A, B, and C Springs, Calf Spring, and to Mormon Creek. Groundwater with selenium above the remediation goal discharges to Mormon A, B, and C Springs, Calf Spring, and to Mormon Creek (Figures 5 and 11). The southern extent of the groundwater with selenium above the remediation goal cannot be determined with the existing monitoring wells because selenium exceeds the remediation goal in the southernmost well (TW-59).

The distribution of fluoride (Figure 8), nitrate (Figure 9) and manganese (Figure 10) is similar to that reported in Golder (2008b). The concentrations of these constituents are above the remediation goals in the area of the Old UFS ponds, but the extent of groundwater with concentration of fluoride, manganese, and nitrate above the remediation goals does not extend south of the Plant Fenceline with the exception of fluoride in the Harris Well and possibly TW-54. Some UBZ-2 groundwater with slightly elevated (but below the remediation goal) concentrations of fluoride and nitrate discharges at Mormon A, B, and C Springs, Calf Spring, and to Mormon Creek.

The UBZ-1 west of Government Dam Road south of Mormon Creek appears to be hydraulically separated from the UBZ-2 on the east side of Government Dam Road. Groundwater with constituent of concern concentrations above the remediation goal (with the exception of naturally-occurring manganese) does not extend to wells TW-60 and TW-61 on the west side of Government Dam Road and south of Mormon Creek (Figure 8). This is because the area south of Mormon Creek represents an area of groundwater discharge from the Chesterfield Range regional groundwater flow system, with an upward component of hydraulic gradient. Manganese exceeds the remediation goal in TW-60 and TW-61 because of the

upwelling of sodic groundwater containing naturally elevated concentrations of manganese (Golder 1995; Golder 2007a).

6.5 New Monitoring Wells

Four new monitoring wells (2007 Monitoring Wells) were installed south of the Southern Boundary Wells (Golder 2007a) to evaluate groundwater conditions and groundwater quality in the areas south of the Plant, and to delineate the southern extent of groundwater plumes in the UBZ-1 and UBZ-2. The well locations are shown on Figure 2.

The new wells indicate the following:

- Concentrations of constituents of concern are below the remediation goals in all of the new monitoring wells with the exception of selenium in TW-59 and TW-62
- Groundwater in the wells TW-59 and TW-62 (Figure 2) appears to be impacted by the groundwater plume in UBZ-2. Groundwater from these wells contains elevated concentrations of selenium, nitrate as N, chloride, and sulfate. Concentrations of selenium in these two wells exceeded the remediation goals in 2009 while concentrations of the other constituents of concern remain below the remediation goals. There is insufficient information at this time to evaluate any concentration trends in these wells because of the short monitoring history
- The southern boundary of affected groundwater in the UBZ-2 that exceeds the remediation goal for selenium cannot be delineated with the existing well network because the selenium concentration in the southernmost well (TW-59) exceeds the remediation goal
- Groundwater quality in the two wells on the west side of Government Dam Road, TW-60 and TW-61 (Figure 2), appears to be influenced by the up-welling of sodic groundwater. In particular, elevated concentrations of bicarbonate, manganese, total dissolved solids, and calcium and low concentrations of nitrate are indicative of sodic groundwater in these wells originating from the Chesterfield Range regional groundwater flow system (Golder 1995)

GOLDER ASSOCIATES INC.

Michael Klisch, R.G., L.HG.
Senior Project Hydrogeologist

David Banton, R.G., L.HG
Principal Hydrogeologist

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TABLES

**TABLE 1
WELL COMPLETION SUMMARY**

Well	Formation	Measuring Point (MP) (per RI Report)	MP Elevation	Top of Monitored Interval (feet bgs)	Bottom of Monitored Interval (feet bgs)	Hole Diameter (inches)	Casing Diameter (inches)	SP Northing	SP Easting	Comment
HARRIS	UBZ	Top of steel 1" pipe	5,877.56	58.00	62.00	6	6	368,317.90	654,651.32	MP = 4.05' above well-house floor
LEWIS	UBZ	Top of Well Cap	5,864.35	85.00	105.00	6	6	366,022.93	655,889.54	MP is top of threaded access port
TW-08	UBZ	Top of PVC well cap	5,884.88	76.24	91.20	8	4	369,003.99	654,360.29	Top of PVC well cap
TW-10	UBZ	Top of seal	5,885.53	19.56	25.60	8	4	368,989.74	654,367.10	Top of seal = 0.05' above TOC
TW-11	LBZ	Top of coupling	5,938.03	129.12	138.50	8	4	368,986.08	656,682.08	Top of coupling = 0.25' above TOC
TW-12	UBZ	Top of seal	5,939.23	88.55	103.80	8	4	369,017.37	656,681.35	Top of seal = 0.07' above TOC
TW-15	UBZ	Top of seal	5,988.27	50.39	62.40	8	4	374,947.60	658,454.43	Top of seal = 0.04' above TOC
TW-16	UBZ	Top of seal	5,998.39	69.13	78.60	8	4	374,541.55	654,567.41	Top of seal = 0.04' above TOC
TW-17	UBZ	Top of seal	5,998.33	98.50	117.50	8	4	374,539.37	654,587.61	Top of seal = 0.04' above TOC
TW-18	LBZ	Top of seal	5,996.89	221.75	240.80	8	4	374,520.88	654,587.13	Top of seal = 0.04' above TOC
TW-20	UBZ	Top of seal	5,893.37	38.15	46.40	8	4	368,975.43	655,503.64	Top of seal = 0.05' above TOC
TW-22	UBZ	Top of seal	5,954.70	106.36	114.30	8	4	371,421.14	654,280.62	Top of seal = 0.05' above TOC
TW-24	UBZ	Top of PVC casing	5,954.43	75.30	94.30	8	4	371,435.86	654,273.24	
TW-26	UBZ	Top of seal	5,991.42	138.99	145.00	8	4	372,217.87	655,264.35	Top of seal = 0.04' above TOC
TW-29	UBZ	Top of coupling	5,989.59	42.68	49.70	10	4	375,471.82	654,187.34	Top of coupling = 0.27' above TOC
TW-30	UBZ	Top of coupling	5,992.73	64.69	71.70	8	4	373,594.42	655,794.00	Top of coupling = 0.25' above TOC
TW-33	UBZ	Top of coupling	5,975.68	69.11	77.10	8	4	372,526.92	657,699.47	Top of seal = 0.07' above TOC
TW-34	UBZ	Top of coupling	5,893.43	69.92	76.40	8	4	368,993.91	655,496.74	Top of coupling = 0.27' above TOC
TW-35	UBZ	Top of seal	5,897.16	73.53	86.00	8	4	369,036.29	655,076.56	Top of seal = 0.04' above TOC
TW-37	UBZ	Top of seal	5,959.17	96.32	102.90	8	4	372,837.18	654,245.63	Top of seal = 0.03' above TOC
TW-38	UBZ	Top of PVC casing	5,972.91	92.72	104.70	8	4	370,446.40	656,523.94	
TW-39	UBZ	Top of seal	5,897.07	50.57	58.10	8	4	369,036.99	655,061.98	Top of seal = 0.04' above TOC
TW-40	UBZ	Top of PVC casing	5,989.94	84.32	91.30	8	4	373,122.39	655,757.09	
TW-41	UBZ	Top of coupling	5,994.31	57.86	70.90	8	4	373,505.54	655,621.80	Top of coupling = 0.3' above TOC
TW-42	UBZ	Top of PVC casing	5,990.07	79.16	91.20	8	4	373,178.57	655,840.05	Pump out of well
TW-43	UBZ	Top of PVC casing	5,989.08	82.38	91.40	8	4	373,141.22	655,697.28	Pump out of well
TW-44A	LBZ	Top of seal	5,989.41	131.00	150.00	8	4	373,110.02	655,766.66	Top of seal = 0.04' above TOC
TW-45	LBZ	Top of coupling	5,959.17	216.79	230.80	8	4	372,827.62	654,238.16	Top of coupling = 0.26' above TOC
TW-48	UBZ	Top of coupling	5,989.40	67.31	73.30	8	4	375,520.55	655,978.20	Top of coupling = 0.25' above TOC
TW-49	UBZ	Top of seal	5,996.94	75.21	84.20	8	4	374,930.77	656,071.52	Top of seal = 0.04' above TOC
TW-50	UBZ	Top of seal	5,992.94	73.78	90.80	8	4	373,849.68	656,040.74	Top of seal = 0.04' above TOC
TW-53	UBZ	Top of coupling	5,880.65	19.54	34.00	8	4	368,055.24	654,739.84	Top of coupling = 0.26' above TOC
TW-54	UBZ	Top of coupling	5,889.21	39.26	54.30	8	4	368,052.39	655,240.53	Top of coupling = 0.25' above TOC
TW-55	UBZ	Top of coupling	5,886.58	53.50	69.00	8	4	368,050.24	655,739.76	Top of coupling = 0.25' above TOC
TW-56	UBZ	Top of coupling	5,910.20	86.80	100.30	8	4	367,979.10	656,276.06	Top of coupling = 0.2' above TOC
TW-57	UBZ	Top of coupling	5,952.74	23.18	37.30	8	4	374,365.91	654,000.20	Top of coupling = 0.2' above TOC
TW-58	UBZ	Top of Casing	5,892.74	36.30	51.70	12	8	368,980.16	655,458.20	
TW-59	UBZ	Top of coupling	5,858.64	29.00	42.50	8	4	365,662.80	654,853.50	Top of coupling = 0.17' above TOC
TW-60	UBZ	Top of coupling	5,869.42	43.00	56.00	8	4	366,126.70	653,945.10	Top of coupling = flush with TOC
TW-61	UBZ	Top of coupling	5,878.75	61.50	77.00	8	4	367,105.20	653,964.70	Top of coupling = 0.38' above TOC
TW-62	UBZ	Top of coupling	5,881.31	46.60	62.50	8	4	366,945.50	655,320.40	Top of coupling = 0.22' above TOC
SO2 Landfill North	UBZ	Top of coupling	TBD	68	88	8	4	376555.897	656197.958	NAD 27
SO2 Landfill South	UBZ	Top of coupling	TBD	60	80	8	4	375615.533	655478.545	NAD 27

TBD: To be determined



**TABLE 2
HISTORY OF GROUNDWATER INVESTIGATIONS AT MONSANTO PLANT**

Date	Activity	Conducted By/For	Description
1978	Monsanto well installation	Monsanto	Installed 5 groundwater monitoring wells
1982	Monsanto well installation	Monsanto	Installed 2 additional wells, initiated spring sampling
1984	Groundwater Investigation	Golder/Monsanto	Installed 31 groundwater monitoring wells, characterized constituent plumes, identified sources of constituents
1988	CERCLA Site Inspection	Ecology & Environment/EPA	Groundwater sampling and analysis
1991 to 1998	Bi-annual groundwater monitoring	Golder/ Monsanto	Monsanto samples between 50 and 60 monitoring wells, offsite wells, and springs every 6 months
1992	Phase I Remedial Investigation	Golder/Monsanto	Remedial Investigation report for Monsanto Plant site
1993	Phase II Remedial Investigation Fate and Transport Model	Golder/Monsanto	Groundwater model to characterize fate and transport of constituents in groundwater
1995	Solute Transport Model	Golder/Monsanto	Solute transport model to predict the fate and transport of constituents in groundwater
1995	Phase II Remedial Investigation	Golder/Monsanto	Phase II Remedial Investigation
1998 to date	Annual groundwater sampling	Golder/Monsanto	Monsanto samples between 50 and 60 monitoring wells, offsite wells, springs, and surface water annually
2003	Solute Transport Model	Golder/Monsanto	Updated solute transport model to predict the fate and transport of constituents in groundwater, using additional data and a graphical, probabilistic modeling tool
2003	First Five Year Review	Golder/Monsanto	Review of monitoring data and groundwater model predictions to evaluate progress of selected remedial remedy, per the Record of Decision
2007	Groundwater Investigation - South of Plant	Golder/Monsanto	Installed 4 new groundwater monitoring wells (2007 Monitoring Wells)
2008	Second Five Year Review	Golder/Monsanto	Review of monitoring data and groundwater model predictions to evaluate progress of selected remedial remedy, per the Record of Decision
Ongoing	Annual groundwater sampling	Golder/Monsanto	Monsanto samples between 50 and 60 monitoring wells, offsite wells, springs, and surface water sites annually

TABLE 4
SAMPLE COLLECTION SUMMARY MAY AND JUNE 2009

Location	Sample ID	Formation Monitored	Sample Date	Sample Time	Method	Purge Water Disposal Method	Filter/ Unfilter	Filter Size	Notes
Surface Water/Effluent									
Effluent 1	90037	NA	May 31, 2009	10:00	Grab	NA	U		
Effluent 2	90038	NA	May 31, 2009	10:00	Grab	NA	U		
Effluent 3	90039	NA	May 31, 2009	10:00	Grab	NA	U		
Soda Down	90047	NA	May 31, 2009	14:35	Grab	NA	U		
Soda Down Weir	90040	NA	May 31, 2009	10:15	Grab	NA	U		
Soda Mid	90045	NA	May 31, 2009	13:15	Grab	NA	U		
Soda Up	90036	NA	May 31, 2009	9:45	Grab	NA	U		
Pond Inlet	90073	NA	June 3, 2009	7:15	Grab	NA	U		
Groundwater									
Big Spring	90076	NA	June 3, 2009	8:25	Grab	NA	U		
Calf Spring	90042	NA	May 31, 2009	11:30	Grab	NA	U		
City Park Spring	90046	NA	May 31, 2009	14:00	Grab	NA	U		
Harris Well	90066	UBZ	June 2, 2009	17:30	Non-Dedicated Pump	GROUND	U		
Homestead Spring	90048	NA	May 31, 2009	14:50	Grab	NA	U		
Lewis Well	90077	NA	June 3, 2009	8:50	Operating Well	GROUND	U		
Mormon A Spring	90043	NA	May 31, 2009	11:50	Grab	NA	U		
Mormon B Spring	90074	NA	June 3, 2009	7:45	Grab	NA	U		
Mormon C Spring	90075	NA	June 3, 2009	8:00	Grab	NA	U		
Mormon Creek	90044	NA	May 31, 2009	13:10	Grab	NA	U		
PW-01	90060	UBZ, LBZ	June 1, 2009	18:30	Operating Well	GROUND	U		
PW-02	90061	UBZ, LBZ	June 1, 2009	18:45	Operating Well	GROUND	U		
PW-03	90028	UBZ, LBZ	May 30, 2009	12:45	Operating Well	GROUND	U		
PW-04	90027	UBZ, LBZ	May 30, 2009	12:15	Operating Well	GROUND	U		
SO2 Landfill North	90017	UBZ	May 29, 2009	13:00	Dedicated Pump	GROUND	F		
SO2 Landfill South	90018	UBZ	May 29, 2009	14:05	Dedicated Pump	GROUND	U		
SW Spring	90041	NA	May 31, 2009	11:05	Grab	NA	U		
TW-08	90052	UBZ	June 1, 2009	11:25	Non-Dedicated Pump	TANK	U		
TW-10	90007	UBZ	May 28, 2009	19:20	Dedicated Pump	TANK	U		
TW-11	90029	LBZ	May 30, 2009	14:30	Dedicated Pump	TANK	U		
TW-11	90030	LBZ	May 30, 2009	14:30	Dedicated Pump	TANK	U		Duplicate
TW-12	90031	UBZ	May 30, 2009	14:55	Dedicated Pump	TANK	U		
TW-12	90032	UBZ	May 30, 2009	14:55	Dedicated Pump	TANK	U		Split
TW-15	90019	UBZ	May 29, 2009	14:25	Dedicated Pump	GROUND	U		
TW-16	90021	UBZ	May 29, 2009	14:45	Dedicated Pump	TANK	U		
TW-17	90022	UBZ	May 29, 2009	15:15	Dedicated Pump	TANK	U		
TW-18	90023	LBZ	May 29, 2009	16:00	Dedicated Pump	GROUND	U		
TW-20	90002	UBZ	May 28, 2009	18:15	Dedicated Pump	TANK	U		
TW-20	90003	UBZ	May 28, 2009	18:15	Dedicated Pump	TANK	U		Spilt
TW-22	90008	UBZ	May 28, 2009	20:10	Dedicated Pump	TANK	U		
TW-24	90053	UBZ	June 1, 2009	13:00	Non-Dedicated Pump	GROUND	U		
TW-26	90024	UBZ	May 29, 2009	17:30	Dedicated Pump	TANK	U		
TW-29	90015	UBZ	May 29, 2009	11:40	Dedicated Pump	GROUND	U		
TW-30	90058	UBZ	June 1, 2009	16:55	Dedicated Pump	TANK	U		
TW-33	90054	UBZ	June 1, 2009	14:50	Dedicated Pump	TANK	U		
TW-33	90055	UBZ	June 1, 2009	14:55	Dedicated Pump	TANK	U		Duplicate
TW-33	90056	UBZ	June 1, 2009	14:50	Dedicated Pump	TANK	U		Split
TW-34	90001	UBZ	May 28, 2009	18:00	Dedicated Pump	GROUND	U		
TW-35	90004	UBZ	May 28, 2009	18:45	Dedicated Pump	GROUND	U		
TW-37	90034	UBZ	May 30, 2009	16:45	Dedicated Pump	TANK	U		
TW-38	90051	UBZ	June 1, 2009	9:30	Non-Dedicated Pump	TANK	U		
TW-39	90005	UBZ	May 28, 2009	19:05	Dedicated Pump	TANK	U		
TW-39	90006	UBZ	May 28, 2009	19:10	Dedicated Pump	TANK	U		Duplicate
TW-40	90025	UBZ	May 30, 2009	9:45	Hand Bailed	TANK	F	0.45 µm	Elevated Turbidity
TW-41	90059	UBZ	June 1, 2009	17:25	Dedicated Pump	TANK	U		
TW-43	90026	UBZ	May 30, 2009	11:00	Hand Bailed	TANK	F	0.45 µm	Elevated Turbidity
TW-44	90050	LBZ	May 31, 2009	17:15	Dedicated Pump	TANK	U		
TW-45	90035	LBZ	May 30, 2009	17:30	Dedicated Pump	TANK	U		
TW-48	90016	UBZ	May 29, 2009	12:45	Dedicated Pump	GROUND	U		
TW-49	90020	UBZ	May 29, 2009	14:45	Dedicated Pump	GROUND	U		
TW-50	90057	UBZ	June 1, 2009	16:00	Dedicated Pump	TANK	U		
TW-53	90068	UBZ	June 2, 2009	19:10	Dedicated Pump	TANK	U		
TW-54	90069	UBZ	June 2, 2009	19:40	Dedicated Pump	TANK	U		
TW-54	90070	UBZ	June 2, 2009	19:40	Dedicated Pump	TANK	U		Split
TW-55	90071	UBZ	June 2, 2009	20:10	Dedicated Pump	TANK	U		
TW-55	90072	UBZ	June 2, 2009	20:10	Dedicated Pump	TANK	U		Duplicate
TW-56	90062	UBZ	June 2, 2009	11:25	Dedicated Pump	TANK	U		
TW-57	90033	UBZ	May 30, 2009	16:15	Dedicated Pump	GROUND	U		
TW-59	90011	UBZ	May 29, 2009	10:20	Dedicated Pump	GROUND	U		
TW-59	90012	UBZ	May 29, 2009	10:20	Dedicated Pump	GROUND	U		Split
TW-60	90010	UBZ	May 29, 2009	9:20	Dedicated Pump	GROUND	U		
TW-61	90009	UBZ	May 29, 2009	8:30	Dedicated Pump	GROUND	U		
TW-62	90013	UBZ	May 29, 2009	10:50	Dedicated Pump	GROUND	U		
TW-62	90014	UBZ	May 29, 2009	10:50	Dedicated Pump	GROUND	U		Duplicate
Fox Hills Ranch	90063	Unknown	June 2, 2009	15:20	Dedicated Pump	GROUND	U		
Quarry Well-4"	90064	Unknown	June 2, 2009	16:30	Dedicated Pump	GROUND	U		
Quarry Well-6"	90065	Unknown	June 2, 2009	16:40	Dedicated Pump	GROUND	U		
QA/QC									
DI Blank	90049	NA	May 31, 2009	16:30	Grab	NA	U		Blank
Grundfos Blank	90067	NA	June 2, 2009	18:30	Grab	NA	U		Equip. Blank

Notes:

- UBZ Upper Basalt Zone
- LBZ Lower Basalt Zone
- U Unfiltered
- F Filtered
- NA Not applicable



TABLE 5
Analytical Methods for Monsanto Groundwater Sampling

Parameters	Analyzed in 2009	Analytical Method	Reporting Limit (mg/L)
Total Metals			
Cadmium	Y	6010B	0.002
Calcium	Y	6010B	0.04
Magnesium	Y	6010B	0.06
Manganese	Y	6010B	0.004
Molybdenum	Y	6010B	0.01
Potassium	Y	6010B	0.50
Selenium	Y	6010B / 7740	0.04 / 0.003
Sodium	Y	6010B	0.50
Vanadium	Y	6010B	0.01
Zinc	Y	6010B	0.01
Other Ions			
Alkalinity (CaCO ₃)	Y	2320B	1.00
CO ₃ /CaCO ₃	Y	2320B	1.00
HCO ₃ /CaCO ₃	Y	2320B	1.00
Ammonia as N	Y	350.1	0.03
Chloride	Y	300	1.00
Fluoride	Y	300	0.10
Hardness	Y	2340B	0.35
Nitrate and Nitrite As N	Y	353.2	0.02
Total Phosphorus	Y	365.2	0.01
Specific Conductance	Y	120.1	0.01
Sulfate	Y	300	0.30
TDS	Y	160.1	10.0
Field Parameters			
Conductivity	Y	NA	NA
Dissolved Oxygen	Y	NA	NA
Eh	N	NA	NA
pH	Y	NA	NA
Turbidity	Y	NA	NA
Temperature	Y	NA	NA

Notes:

Y = Yes

N = No

NA = Not applicable

**TABLE 6
GROUNDWATER ELEVATIONS - MAY AND JUNE 2009**

LOCATION	DATE	DEPTH TO WATER (ft)	WELL VOLUME (gal)	PURGE VOLUME (gal)	MEASUREMENT POINT (MP)	MP ELEVATION (ft)	MAY- JUNE 2009 GROUNDWATER ELEVATION (ft)	COMMENTS
Calf Spring	na	na	na	na	Water Surface	5858.47	5858.47	Water Surface Elevation
Doc Spring	na	na	na	na	Water Surface	5847.58	5847.58	Water Surface Elevation
Homestead Spring	na	na	na	na	Water Surface	5815.86	5815.86	Water Surface Elevation
Hooper Spring	na	na	na	na	Water Surface	5853.78	5853.78	Water Surface Elevation
Mormon A Spring	na	na	na	na	Water Surface	5850.60	5850.60	Water Surface Elevation
Mormon B Spring	na	na	na	na	Water Surface	5843.55	5843.55	Water Surface Elevation
Mormon C Spring	na	na	na	na	Water Surface	5834.01	5834.01	Water Surface Elevation
SW Spring	na	na	na	na	Water Surface	5859.25	5859.25	Water Surface Elevation
HARRIS	June 2, 2009	14.32	73	219	Top of steel 1" pipe	5877.56	5863.24	
LEWIS	June 3, 2009	No Accesss			Top of well cap	5864.35	-	
TW-07	May 28, 2009	Blocked	No sample		Top of PVC well cap	5885.11	-	Debris in well?
TW-08	May 28, 2009	14.88	58	175	Top of PVC well cap	5884.88	5870.00	
TW-09	May 28, 2009	6.65	No sample		Top of coupling	5884.91	5878.26	
TW-10	May 28, 2009	16.17	9	28	Top of seal	5885.53	5869.36	
TW-11	May 30, 2009	64.43	48	145	Top of coupling	5938.03	5873.60	
TW-12	May 30, 2009	65.84	28	85	Top of seal	5939.23	5873.39	
TW-13	May 29, 2009	16.12	No sample		Top of seal	5988.35	5972.23	
TW-14	May 29, 2009	14.26	No sample		Top of PVC casing	5988.59	5974.33	
TW-15	May 29, 2009	17.03	35	105	Top of seal	5988.27	5971.24	
TW-16	May 29, 2009	63.69	15	44	Top of seal	5998.39	5934.70	
TW-17	May 29, 2009	63.65	46	137	Top of seal	5998.33	5934.68	
TW-18	May 29, 2009	61.10	128	384	Top of seal	5996.89	5935.79	
TW-19	May 28, 2009	26.48	No sample		Top of PVC casing	5893.07	5866.59	
TW-20	May 28, 2009	26.78	15	44	Top of seal	5893.37	5866.59	
TW-21	May 28, 2009	21.65	No sample		Top of coupling	5893.68	5872.03	
TW-22	May 28, 2009	71.60	36	109	Top of seal	5954.70	5883.10	
TW-23	May 28, 2009	70.56	No sample		Top of seal	5954.70	5884.14	
TW-24	May 28, 2009	71.30	26	78	Top of PVC casing	5954.43	5883.13	
TW-26	May 29, 2009	84.79	44	133	Top of seal	5991.42	5906.63	
TW-28	May 29, 2009	40.14	No sample		Top of coupling	5989.40	5949.26	
TW-29	May 29, 2009	40.18	13	38	Top of coupling	5989.59	5949.41	
TW-30	June 1, 2009	62.28	10	30	Top of coupling	5992.73	5930.45	
TW-31	June 1, 2009	24.88	No sample		Top of PVC casing	5975.29	5950.41	
TW-32	June 1, 2009	27.38	No sample		Top of coupling	5975.91	5948.53	
TW-33	June 1, 2009	25.33	37	110	Top of seal	5975.86	5950.53	
TW-34	May 28, 2009	26.67	33	99	Top of coupling	5893.43	5866.76	
TW-35	May 28, 2009	29.64	41	124	Top of seal	5897.16	5867.52	
TW-37	May 30, 2009	66.55	26	79	Top of seal	5959.17	5892.62	
TW-38	June 1, 2009	84.38	11	34	Top of PVC casing	5972.91	5888.53	
TW-39	May 28, 2009	30.53	19	58	Top of seal	5897.07	5866.54	
TW-40	May 30, 2009	85.43	5	14	Top of seal	5989.94	5904.51	
TW-41	June 1, 2009	60.53	12	35	Top of coupling	5994.31	5933.78	
TW-42	May 30, 2009	88.03	No sample		Top of seal	5990.07	5902.04	
TW-43	May 30, 2009	83.50	6	18	Top of PVC	5989.08	5905.58	
TW-44	May 30, 2009	88.84	45	136	Top of seal = 0.04' above TOC	5989.41	5900.57	
TW-45	May 30, 2009	70.49	112	337	Top of coupling = 0.26' above TOC	5959.17	5888.68	
TW-48	May 29, 2009	59.78	11	33	Top of coupling	5989.40	5929.62	
TW-49	May 29, 2009	71.10	12	37	Top of seal	5996.94	5925.84	
TW-50	June 1, 2009	68.71	30	91	Top of seal	5992.94	5924.23	
TW-53	June 2, 2009	18.76	16	47	Top of coupling	5880.65	5861.89	
TW-54	June 2, 2009	26.04	24	72	Top of coupling	5888.96	5862.92	
TW-55	June 2, 2009	25.84	34	102	Top of coupling	5886.33	5860.49	
TW-56	June 2, 2009	48.92	35	104	Top of coupling	5910.20	5861.28	
TW-57	May 30, 2009	9.54	25	76	Top of coupling	5952.74	5943.20	
TW-58	May 28, 2009	26.24	No sample		Top of Steel Casing	5892.74	5866.50	
TW-59	May 29, 2009	18.27	25	75	Top of coupling	5858.64	5840.37	
TW-60	May 29, 2009	32.18	25	75	Top of coupling	5869.42	5837.24	
TW-61	May 29, 2009	31.42	35	105	Top of coupling	5878.75	5847.33	
TW-62	May 29, 2009	29.67	31	93	Top of coupling	5881.31	5851.64	
SO2 Landfill North	May 29, 2009	65.19	25	76	Top of coupling	TBD	-	Not surveyed
SO2 Landfill South	May 29, 2009	51.44	25	76	Top of coupling	TBD	-	Not surveyed

TBD: to be determined

TABLE 7
ANALYTICAL RESULTS FOR MAY - JUNE 2009 SAMPLE ROUND

Location	SampleID	Filtered	Sample Type	Alkalinity (Total) (mg/L as CaCO3)	Q	Alkalinity (Carbonate) (mg/L as CaCO3)	Q	Alkalinity (Bicarbonate) (mg/L as CaCO3)	Q	Ammonia as N (mg/L)	Q	Cadmium (mg/L)	Q	Calcium (mg/L)	Q	Chloride (mg/L)	Q	Fluoride (mg/L)	Q	Magnesium (mg/L)	Q	Manganese (mg/L)	Q
REMEDIATION GOAL												0.005							4				0.18
Groundwater																							
Big Spring	90076	N	Grab	401	J	1.00	UJ	401	J	1.42	J	0.00096	U	101		28	J	0.387	J	47.2		0.0013	U
Calf Spring	90042	N	Grab	444		1.00	U	444		0.078		0.0108		170		110		4.19		128		0.148	
City Park Spring	90046	N	Grab	567	J	1.00	UJ	567	J	0.928	J	0.00013	U	133		39.7	J	0.676	J	67.2		0.0951	
Harris	90066	N	Grab	421	J	1.00	UJ	421	J	0.03	UJ	0.00096	U	150		84.9	J	6.48	J	105		0.0013	J
Homestead Spring	90048	N	Grab	678	J	1.00	UJ	678	J	0.03	UJ	0.00024	J	121		29.8	J	0.398	J	108		0.0984	
Lewis	90077	N	Grab	414	J	1.00	UJ	414	J	0.03	UJ	0.00096	U	116		45.1	J	0.62	J	69.3		0.0013	U
Mormon A Spring	90043	N	Grab	443		1.00	U	443		0.03	U	0.0163		163		119		4.03		131		0.0013	U
Mormon B Spring	90074	N	Grab	609	J	1.00	UJ	609	J	0.03	UJ	0.00096	U	128		128	J	2.04	J	131		0.0024	J
Mormon C Spring	90075	N	Grab	445	J	1.00	UJ	445	J	0.03	UJ	0.00096	U	128		73.2	J	2.38	J	104		0.0013	U
Mormon Creek	90044	N	Grab	516	J	1.00	UJ	516	J	0.065	J	0.0046		138		165	J	2.43	J	123		0.0142	
PW-01	90060	N	Grab	428	J	1.00	UJ	428	J	0.03	U	0.0589		142		185		0.833		76.4		0.0015	U
PW-02	90061	N	Grab	426	J	1.00	UJ	426	J	0.03	U	0.006		128		78.2		0.437		62.5		0.0015	U
PW-03	90028	N	Grab	436		1.00	U	436		0.03	U	0.0016	J	131		92.2		0.491		64.4		0.0013	U
PW-04	90027	N	Grab	431		1.00	U	431		0.03	U	0.00096	U	105		13.1		0.259		54.2		0.0013	U
SO2 Landfill South	90017	N	Grab	435	J	1.00	UJ	435	J	0.03	UJ	0.00013	U	104		14.4	J	0.242	J	53.4		0.0015	U
SO2 Landfill North	90018	N	Grab	216	J	1.00	UJ	216	J	0.03	UJ	0.00013	U	88.6		22.5	J	0.455	J	16.9		0.0015	U
SW Spring	90041	N	Grab	834		1.00	U	834		0.03	U	0.0027		122		13.7		0.917		140		0.0299	
TW-08	90052	N	Grab	1,370	J	1.00	UJ	1370	J	0.647	J	0.0004	J	51.9		18.9	J	0.132	J	295		0.108	
TW-10	90007	N	Grab	685		1.00	U	685		0.03	U	0.00013	U	148		191		0.752		151		0.0015	U
TW-11	90029	N	Grab	411		1.00	U	411		4.67		0.00096	U	98.9		35		0.272		38.2		0.0013	U
TW-11	90030	N	Duplicate	431		1.00	U	431		4.92		0.00096	U	94.6		30.9		0.275		36.8		0.0013	U
TW-12	90031	N	Grab	408		1.00	U	408		3.97		0.00096	U	109		35.4		0.254		44.7		0.0187	
TW-12	90032	N	Split	402						4.01		0.002	U	107		33.6		0.2		43.9		0.02	
TW-15	90019	N	Grab	394		1.00	U	394		0.03	U	0.00051	J	102		12.7		0.264		40.2		0.0015	U
TW-16	90021	N	Grab	556	J	1.00	UJ	556	J	0.03	UJ	0.433		143		91.8	J	2	J	94.8		0.0015	U
TW-17	90022	N	Grab	1,310	J	1.00	UJ	1310	J	0.237	J	0.0028		59.2		2.01	J	1.5	J	283		2.81	
TW-18	90023	N	Grab	1,170		1.00	U	1170		0.346		0.00096	U	103		16.2		0.1	U	206		0.396	
TW-20	90002	N	Grab	367		1.00	U	367		0.03	U	0.0048		164		93.6		2.13		102		0.0015	U
TW-20	90003	N	Split	375						0.05	U	0.003		169		83.7		1.8		106		0.05	U
TW-22	90008	N	Grab	750		1.00	U	750		1.39		0.023		136		25.7		3.03		106		0.784	
TW-24	90053	N	Grab	689	J	1.00	UJ	689	J	0.813	J	0.289		153		80.4	J	4.63	J	110		0.28	
TW-26	90024	N	Grab	509		1.00	U	509		0.883		0.00096	U	150	J	297		1.98		130	J	0.55	
TW-29	90015	N	Grab	571	J	1.00	UJ	571	J	0.03	UJ	0.00013	U	147		85.3	J	0.199	J	84.8		0.0015	U
TW-30	90058	N	Grab	401	J	1.00	UJ	401	J	0.03	U	0.00031	J	210		290		2.05		129		0.0049	
TW-33	90054	N	Grab	400		1.00	U	400		0.03	U	0.00043	J	110		20.2		0.257		39		0.0028	J
TW-33	90055	N	Duplicate	402	J	1.00	UJ	402	J	0.03	U	0.00045	J	109		21.7		0.257		38.8		0.0023	J
TW-33	90056	N	Split	404						0.017		0.002	U	107		19.5		0.2		38.6		0.003	
TW-34	90001	N	Grab	680		1.00	U	680		0.03		0.00013	U	140		35		0.378		108		0.17	
TW-35	90004	N	Grab	1,250		1.00	U	1250		0.236		0.00026	J	60.6		36.1		0.147		271		0.146	
TW-37	90034	N	Grab	280		1.00	U	280		0.513		0.964		263		508		9.29		125		0.707	
TW-38	90051	N	Grab	394	J	1.00	UJ	394	J	0.03	UJ	0.00013	U	114		39.3	J	0.281	J	47.3		0.0015	U
TW-39	90005	N	Grab	1	UJ	1.00	U	1	UJ	0.034	J	0.0168		180		135		3.76		150		0.0015	U

TABLE 7
ANALYTICAL RESULTS FOR MAY - JUNE 2009 SAMPLE ROUND

Location	SampleID	Filtered	Sample Type	Alkalinity (Total) (mg/L as CaCO3)	Q	Alkalinity (Carbonate) (mg/L as CaCO3)	Q	Alkalinity (Bicarbonate) mg/L as CaCO3	Q	Ammonia as N (mg/L)	Q	Cadmium mg/L	Q	Calcium mg/L	Q	Chloride mg/L	Q	Fluoride (mg/L)	Q	Magnesium (mg/L)	Q	Manganese (mg/L)	Q
TW-39	90006	N	Duplicate	451	J	1.00	U	451	J	0.03	U	0.017		181		135		3.34		150		0.0015	U
TW-40	90025	Y	Grab	414		1.00	U	414		0.03	U	2.02		310		446		2.92		145		0.0266	
TW-41	90059	N	Grab	370	J	1.00	UJ	370	J	0.03	U	0.0044		132		116		3.75		70.2		0.0015	U
TW-43	90026	Y	Grab	459		1.00	U	459		0.03	U	1.67		261		310		5.68		117		0.0054	
TW-44	90050	N	Grab	866	J	1.00	UJ	866	J	0.343	J	0.002		53.9		27.4	J	0.408	J	187		0.226	
TW-45	90035	N	Grab	978		1.00	U	978		0.685		0.0028		129		28		0.832		168		0.445	
TW-48	90016	N	Grab	389	J	1.00	UJ	389	J	0.03	UJ	0.00013	U	98.6		13.7	J	0.237	J	48		0.0015	U
TW-49	90020	N	Grab	450	J	1.00	UJ	450	J	0.03	UJ	0.00013	U	112		23.4	J	0.25	J	58.3		0.0015	U
TW-50	90057	N	Grab	487	J	1.00	UJ	487	J	0.03	U	0.0055		128		213		0.46		170		0.61	
TW-53	90068	N	Grab	413	J	1.00	UJ	413	J	0.03	UJ	0.00096	U	139		77.8	J	3.65	J	96.8		0.0013	U
TW-54	90069	N	Grab	388	J	1.00	UJ	388	J	0.03	UJ	0.00096	U	144		82.3	J	4.21	J	97.3		0.0034	J
TW-54	90070	N	Split	396						0.05	U	0.002	U	144		77.9		2.8		98.3		0.001	
TW-55	90071	N	Grab	1	UJ	1.00	UJ	1	UJ	0.03	UJ	0.00096	U	197		44.8	J	1.48	J	121		0.0013	U
TW-55	90072	N	Duplicate	833	J	1.00	UJ	833	J	0.03	UJ	0.00096	U	199		48.1	J	0.714	J	123		0.0013	U
TW-56	90062	N	Grab	392	J	1.00	UJ	392	J	0.03	U	0.00013	U	105		49.4		0.349		61		0.0201	
TW-57	90033	N	Grab	681		1.00	U	681		0.03	U	0.00096	U	143		14.9		0.432		87.3		0.0013	U
TW-59	90011	N	Grab	766		1.00	U	766		0.03	U	0.00013	U	206		64.2		0.23		124		0.0036	J
TW-59	90012	N	Split	763						0.042		0.002	U	210		60.6		0.2		129		0.006	
TW-60	90010	N	Grab	1190		1	U	1190		0.392		0.00049	J	68.8		18.1		0.248		242		6.27	
TW-61	90009	N	Grab	1090		1	U	1090		0.555		0.0011	J	91.4		24.3		0.286		204		0.507	
TW-62	90013	N	Grab	687	J	1	UJ	687	J	0.03	UJ	0.00013	U	201		76.1	J	0.22	J	128		0.0473	
TW-62	90014	N	Duplicate	693	J	1	UJ	693	J	0.03	UJ	0.00013	U	200		78.7	J	0.217	J	127		0.0465	
Surface Water/Effluent																							
Effluent 1	90037	N	Grab	454		1	U	454		0.115		0.0079		131		397		0.324		68.9		0.0013	U
Effluent 2	90038	N	Grab	449		1	U	449		0.1		0.0074		135		391		1.02		69.7		0.0013	U
Effluent 3	90039	N	Grab	447		1	U	447		0.101		0.0089		133		388		1.01		68.9		0.0013	U
Pond Inlet	90073	N	Grab	451	J	2.6	J	448	J	0.032	J	0.0098		126		106	J	0.745	J	61.8		0.0013	U
Soda Down	90047	N	Grab	766	J	1	UJ	766	J	0.094	J	0.0036		126		54.9	J	1.04	J	129		0.105	
Soda Down Weir	90040	N	Grab	510		1	U	510		0.096		0.00096	U	86.2		30.8		0.373		78.2		0.183	
Soda Mid	90045	N	Grab	834	J	1	UJ	834	J	0.052	J	0.0029		111		14.7	J	0.622	J	126		0.0825	
Soda Up	90036	N	Grab	531		1	U	531		0.141		0.00096	U	82.7		11.5		0.389		82		0.207	

Notes:

"-*" Not applicable

na: not analyzed

J - The result is an estimated value.

J+ - The result is an estimated value with high bias.

UJ - The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

U - The analyte was not detected at the method detection limit.

TABLE 7
ANALYTICAL RESULTS FOR MAY - JUNE 2009 SAMPLE ROUND

Location	SampleID	Molybdenum (mg/L)	Q	Nitrate and Nitrite as N (mg/L)	Q	Phosphorus (Total) (mg/L)	Q	Potassium (mg/L)	Q	Selenium (mg/L)	Q	Sodium (mg/L)	Q	Sulfate (mg/L)	Q	Total Dissolved Solids (mg/L)	Q	Vanadium (mg/L)	Q	Zinc (mg/L)	Q
REMEDIATION GOAL				10						0.05											
Groundwater																					
Big Spring	90076	0.181		3.92	J	0.04	J	5.03		0.0024	J	37.8		74.6	J	597	J	0.0022	J	0.0019	U
Calf Spring	90042	0.0842		7.5		0.99		25.1		0.252		87.7		461		1380		0.0188		0.201	
City Park Spring	90046	0.136		3.41	J	0.12	J	7.92		0.0031	J	38.8		90.5	J	704	J	0.0035	J	0.0061	U
Harris	90066	0.0718		5.76	J	0.18	J	20.5		0.244		75.1		365	J	1230	J	0.0035	J	0.0022	J
Homestead Spring	90048	0.0045	J	8.85	J	0.29	J	6.73		0.0164	J	37.1		103	J	850	J	0.0113		0.0462	
Lewis	90077	0.102		8.95	J	0.13	J	6.76		0.0142		37.7		151	J	771	J	0.0045	J	0.0055	J
Mormon A Spring	90043	0.0785		9.05		0.31		23.3		0.256		87.2		466		1440		0.0159		0.229	
Mormon B Spring	90074	0.0239		6.28	J	0.26	J	14.5		0.158		105		270	J	1230	J	0.0052		0.0019	U
Mormon C Spring	90075	0.0248		8.69	J	0.18	J	18.3		0.172		65.9		313	J	1090	J	0.0057		0.0019	U
Mormon Creek	90044	0.0523		5.41	J	0.25	J	20.3		0.201	J	123		383	J	1330	J	0.013		0.108	
PW-01	90060	0.0441		4.94		1.26		14.9		0.0687	J	120		229		1080		0.0147		0.0726	
PW-02	90061	0.0426		4.58		0.48		8.11		0.0226	J	54.9		171		808		0.0234		0.0137	J+
PW-03	90028	0.0524		4.27		0.46		7.54		0.0168		64.3		161		848		0.0475		0.0149	
PW-04	90027	0.0092		4.23		0.09		4.61		0.0015	J	17.5		66.8		556		0.0024	J	0.0019	J
SO2 Landfill South	90017	0.0019	J	3.7	J	0.07	J	4.51		0.0015	J	17.2		72.5	J	576		0.0022	J	0.0009	U
SO2 Landfill North	90018	0.0018	J	15.3	J	0.05	J	2.18		0.0028	J	21.9		43.7	J	451		0.0073		0.0009	U
SW Spring	90041	0.0254		1.57		0.18		13		0.0231		41		61.3		898		0.004	J	0.0657	
TW-08	90052	0.0027	J	0.05	UJ	0.87	J	21.7		0.0006	U	47.5		79.8	J	1300	J	0.00017	U	0.0009	U
TW-10	90007	0.0206		6.25		0.44		11.1		0.16		58.6		178		1240	J	0.0052		0.0107	
TW-11	90029	0.0082		3.94		0.06		8.32		0.0016	J	72.2		89.8		588		0.0018	J	0.0035	J
TW-11	90030	0.0092		3.94		0.07		8.04		0.0017	J	69.5		90.2		588		0.0021	J	0.0028	J
TW-12	90031	0.195		5.37		0.39		5.11		0.0048	J	36.2		83.7		608		0.438		0.0041	J
TW-12	90032	0.184		4.89		0.95	J	4.7		0.008		34.6		82.7		610		0.414		0.01	U
TW-15	90019	0.0026	J	1.47		0.05		2.4		0.0026	J	7.59		36.6		451		0.0023	J	0.0098	J
TW-16	90021	0.0104		4.99	J	1.68	J	9.21		0.132		58.5		197	J	1030		0.0587		1.49	
TW-17	90022	0.0295		0.05	UJ	1.21	J	20.8		0.0072	J	81.9		163	J	1390		0.0019	J	0.0296	
TW-18	90023	0.0123		0.05	U	0.46		19.2		0.0006	U	44.4		61.1		1150		0.00048	U	0.0065	J
TW-20	90002	0.0426		8.81		0.2		15.8		0.0994		65.4		467		1260	J	0.0057		0.0771	
TW-20	90003	0.044		8.93		0.792	J	15.4		0.12		65.5		440		1300	J	0.006		0.08	
TW-22	90008	0.244		4.31		0.42		29.6		0.131		47.3		130		970	J	0.0053		0.107	
TW-24	90053	0.332		4.95	J	0.33	J	27.1		0.234	J	56.1		179	J	1060	J	0.0779		1.94	
TW-26	90024	0.126		4.96		0.5		28.9		0.298		156	J	435		1560		0.0052		0.0108	
TW-29	90015	0.0017	J	4.44	J	0.11	J	6.19		0.0092		28.4		93.4	J	865		0.0028	J	0.0009	U
TW-30	90058	0.0932		7.76		4.04		35.5		0.237	J	173		650		1870		0.0036	J	0.0009	U
TW-33	90054	0.041		4.41		0.18		2.51		0.0029	J	16.5		47.4		479		0.456		0.0131	J+
TW-33	90055	0.0409		4.45		0.17		2.48		0.003	J	16.4		47.5		498		0.456		0.0121	J+
TW-33	90056	0.043		3.89		0.566	J	2.3		0.004		16		45.5		990		0.406		0.01	
TW-34	90001	0.0031	J	0.0904		0.09		10.8		0.0051	J	25.2		148		940	J	0.00017	U	0.0009	U
TW-35	90004	0.0028	J	0.05	U	0.53		18.5		0.00079	J	41.5		127		1290	J	0.00017	U	0.0009	U
TW-37	90034	0.242		9.37		0.73		31.4		0.23		57.7		317		1770		0.046		4.19	
TW-38	90051	0.0358		3.87	J	0.13	J	3.74		0.0074	J	25.6		87.9	J	568	J	0.138		0.0009	U
TW-39	90005	0.075		7.89	J	0.31		29.5		0.432		108		4300	J	3770	J	0.014		0.157	

TABLE 7
ANALYTICAL RESULTS FOR MAY - JUNE 2009 SAMPLE ROUND

Location	SampleID	Molybdenum (mg/L)	Q	Nitrate and Nitrite as N (mg/L)	Q	Phosphorus (Total) (mg/L)	Q	Potassium (mg/L)	Q	Selenium (mg/L)	Q	Sodium (mg/L)	Q	Sulfate (mg/L)	Q	Total Dissolved Solids (mg/L)	Q	Vanadium (mg/L)	Q	Zinc (mg/L)	Q
TW-39	90006	0.0762		8.63		0.31		29.7		0.413		109		647	J	1680	J	0.0142		0.154	
TW-40	90025	0.139		19.3		4.96		49.1		0.571		251		860		2520		0.0525		3.16	
TW-41	90059	0.129		6.0		6.14		27.4		0.22	J	76.8		310		1020		0.0126		0.0099	J
TW-43	90026	0.136		11.9		9.8		50		0.578		199		654		1980		0.0627		2.18	
TW-44	90050	0.0058	J	0.05	UJ	2.14	J	12.1		0.0012	J	31.1		97.4	J	917	J	0.0011	J	0.0673	
TW-45	90035	0.0258		0.05	U	0.4		17.9		0.0006	U	46.3		113		1120		0.00073	J	0.0403	
TW-48	90016	0.0017	J	4.77	J	0.08	J	4.32		0.0016	J	16.4		67.7	J	540		0.003	J	0.0035	J
TW-49	90020	0.0066	J	3.59	J	0.09	J	4.9		0.0047	J	21.5		81	J	623		0.0023	J	0.0028	J
TW-50	90057	0.0256		1.01		0.33		15.3		0.0463	J	80.4		452		1440		0.0031	J	0.0165	J+
TW-53	90068	0.0487		6.1	J	0.16	J	16.8		0.199		68.5		346	J	1140	J	0.0031	J	0.0184	
TW-54	90069	0.0789		7.35	J	0.22	J	19.2		0.136		69.1		377	J	1150	J	0.0043	J	0.0627	
TW-54	90070	0.078		6.81		0.76	J	18.4		0.17		67.9		372		1180		0.006		0.06	
TW-55	90071	0.0023	U	3.09	J	0.13	J	9.63		0.0309		38.9		161	J	2590	J	0.0012	J	0.0019	U
TW-55	90072	0.0023	U	3.12	J	0.13	J	9.63		0.0313		38.8		186	J	1120	J	0.001	J	0.0019	U
TW-56	90062	0.0792		6.44		0.08		7.39		0.0015	J	30.7		128		674		0.0019	J	0.0314	J+
TW-57	90033	0.0095		1.33		0.16		6.72		0.0039	J	27.2		68.9		794		0.0017	J	0.0026	J
TW-59	90011	0.0043	J	5.03		0.09	J	9.88		0.107		48.2		279		1260		0.002	J	0.0009	U
TW-59	90012	0.007		4.89		0.764		9.4		0.14		47.4		266		1310		0.003	U	0.01	U
TW-60	90010	0.0041	J	0.05	U	0.24		14.4		0.0006	U	36.1		75		1140		0.00017	U	0.0159	
TW-61	90009	0.0019	J	0.05	U	0.63		15.5		0.0009	J	37.4		97.2		1170		0.00017	U	0.0086	J
TW-62	90013	0.0056	J	5.41	J	0.1	J	10.7		0.132		58		344	J	1340		0.0021	J	0.0009	U
TW-62	90014	0.0057	J	4.89	J	0.09	J	10.7		0.131		57.5		354	J	1350		0.0021	J	0.0036	J
Surface Water/Effluent																					
Effluent 1	90037	0.0479		3.91		1.28		8.91		0.0246		268		165		1370		0.0377		0.0266	
Effluent 2	90038	0.0494		3.93		1.28		9.01		0.0246		269		166		1350		0.0383		0.0271	
Effluent 3	90039	0.0498		3.95		1.29		8.93		0.0241		265		167		1350		0.0375	J	0.0265	
Pond Inlet	90073	0.0385		4.48	J	1.05	J	7.73		0.0248		95.1		169	J	892	J	0.0394		0.0228	
Soda Down	90047	0.0225		2.14	J	0.27	J	14.7		0.0694	J	60.7		146	J	1030	J	0.007		0.0558	
Soda Down Weir	90040	0.0131		0.834		0.17		9.06		0.0016	J	37.4		48.5		601		0.0038	J	0.004	J
Soda Mid	90045	0.014		1.18	J	0.21	J	12.3		0.0239		37.4		58	J	878	J	0.0043	J	0.0461	
Soda Up	90036	0.0103		0.4		0.12		9.21		0.0006	UJ	23.4		42.8		579		0.0014	J	0.0038	J

Notes:

"- " Not applicable

na: not analyzed

J - The result is an estimated value.

J+ - The result is an estimated value

UJ - The analyte was analyzed for bu

U - The analyte was not detected at tl

TABLE 8
SHORT-TERM CONSTITUENT CONCENTRATION TRENDS AT POINT OF COMPLIANCE WELLS AND SODA CREEK

Location	Formation	Cadmium	Fluoride	Manganese	Nitrate as N	Selenium	Chloride ^a	Molybdenum ^a	Sulfate ^a
Remediation Goal (mg/L)		0.005	4	0.18	10	0.05	n/a	n/a	n/a
Groundwater									
Production Wells									
PW-01	UBZ-4/LBZ-4	↑ N	↔ Y	↔ Y	↔ Y	↔ N	↑	↑	↑
PW-02	UBZ-4/LBZ-4	↑ N	↔ Y	↔ Y	↔ Y	↔ Y	↑	↑	↑
PW-03	UBZ-4/LBZ-4	↔ Y	↔ Y	↔ Y	↔ Y	↔ Y	↑	↔	↑
Southern Plant Fence Line									
TW-20	UBZ-2	↓ Y	↔ Y	↔ Y	↓ Y	↓ N	↓	↓	↓
TW-34	LBZ-2	↔ Y	↔ Y	↓ Y	↔ Y	↔ Y	↓	↓	↓
TW-35	LBZ-2	↔ Y	↔ Y	↔ Y	↔ Y	↔ Y	↔	↔	↔
TW-39	UBZ-2	↑ N	↑ Y	↔ Y	↓ Y	↑ N	↑	↑	↑
Southern Boundary									
TW-53	UBZ-2	↔ Y	↑ Y	↔ Y	↑ Y	↑ N	↔	↔	↑
TW-54	UBZ-2	↔ Y	↑ N(?) ^c	↔ Y	↔ Y	↓ N	↓	↑	↓
TW-55	UBZ-2	↔ Y	↑ Y	↔ Y	↔ Y	↓ Y	↓	↔	↓
Mormon A Spring ^b	UBZ-2	↑ N	↑ Y	↔ Y	↔ Y	↔ N	↑	↑	↑
Harris Well	UBZ-2	↔ Y	↑ N	↔ Y	↔ Y	↔ N	↔	↑	↓
Surface Water/Effluent Discharge									
Soda Creek									
Soda Up Station		↔ Y	↔ Y	↑ N*	↔ Y	↔ Y	↔	↔	↔
Soda Down Station		↔ Y	↑ Y	↔ Y	↑ Y	↑ N	↔	↔	↑
Effluent Discharge		↑	↑	↔	↔	↔	↑	↑	↑

a. Constituents included for illustrative purposes only, no remediation goal

b. Proposed alternative point of compliance for Harris Well

c. Fluoride was detected in the primary sample at a concentration above the remediation goal, but was detected in the split sample at a concentration below the remediation goal.

* Natural Background

- ↔ Concentrations relatively stable overall in the past 5 years (2005 to 2009)
- ↓ Concentrations decreased overall in the past 5 years (2005 to 2009)
- ↑ Concentrations increased overall in the past 5 years (2005 to 2009)
- Y Equal to or less than EPA Remediation Goal in May-June 2009
- N Greater than EPA Remediation Goal in May-June 2009

**TABLE 9
SHORT-TERM CONSTITUENT CONCENTRATION TRENDS AT OTHER WELLS AND SPRINGS**

Location	Formation	Cadmium	Fluoride	Manganese	Nitrate as N	Selenium	Chloride	Molybdenum	Sulfate
NW Pond									
TW-29 (background)	UBZ-4	↔	↔	↔	↓	↔	↑	↓	↓
TW-16	UBZ-4	↔	↔	↔	↔	↓	↑	↔	↔
TW-17	UBZ-4	↔	↔	↑	↔	↔	↔	↓	↔
TW-18	LBZ-4	↔	↔	↔	↔	↔	↔	↔	↔
Old UFS Pond Area									
TW-57 (background)	UBZ-2	↔	↑	↔	↔	↔	↔	↔	↓
TW-22	UBZ-2	↔	↔	↓	↔	↓	↔	↓	↔
TW-24	UBZ-2	↔	↓	↔	↓	↓	↓	↓	↔
TW-37	UBZ-2	↑	↔	↔	↔	↓	↑	↓	↔
TW-45	LBZ-2	↔	↔	↔	↔	↔	↔	↔	↔
UFS Piles Area									
TW-48	UBZ-4	↔	↔	↔	↔	↔	↔	↔	↔
TW-49	UBZ-4	↔	↔	↔	↔	↔	↔	↔	↔
TW-50	UBZ-4	↓	↔	↑	↔	↔	↑	↓	↑
Old Hydroclarifier									
TW-40	UBZ-4	↓	↔	↔	↔	↓	↔	↔	↑
TW-43	UBZ-4	↔	↔	↔	↓	↓	↔	↓	↔
TW-44	LBZ-4	↔	↔	↔	↔	↔	↔	↔	↑
Springs									
Homestead Spring	UBZ-1	↔	↔	↔	↔	↔	↔	↔	↔
Mormon A Spring	UBZ-2	↑	↑	↔	↔	↔	↔	↑	↑

↔ Concentrations relatively stable overall in the past 5 years (2005 to 2009)
 ↓ Concentrations decreased overall in the past 5 years (2005 to 2009)
 ↑ Concentrations increased overall in the past 5 years (2005 to 2009)

**TABLE 10
SUMMARY OF CONSTITUENT CONCENTRATION TRENDS AT SOURCE AREAS**

Location	Formation	Cadmium		Fluoride		Manganese		Nitrate as N		Selenium		Chloride		Molybdenum		Sulfate	
		1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009
NW Pond																	
TW-29 (background)	UBZ-4	↔	↔	↔	↔	↔	↔	↔	↓	↔	↔	↑	↑	↔	↓	↔	↓
TW-16	UBZ-4	↔	↔	↓	↔	↓	↔	↔	↔	↓	↓	↔	↑	↔	↔	↔	↔
TW-17	UBZ-4	↔	↔	↓	↔	↑	↑	↔	↔	↔	↔	↓	↔	↓	↓	↓	↔
TW-18	LBZ-4	↔	↔	↔	↔	↔	↔	↓	↔	↔	↔	↔	↔	↑	↔	↔	↔
Old UFS Pond Area																	
TW-57 (background)	UBZ-2	↔	↔	↔	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↓	↓
TW-22	UBZ-2	↔	↔	↓	↔	↔	↓	↔	↔	↔	↓	↔	↔	↓	↓	↔	↔
TW-24	UBZ-2	↔	↔	↔	↓	↔	↔	↔	↓	↔	↓	↔	↓	↔	↓	↔	↔
TW-37	UBZ-2	↑	↑	↓	↔	↓	↔	↑	↔	↔	↓	↑	↑	↔	↓	↑	↔
TW-45	LBZ-4	↓	↔	↔	↔	↓	↔	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔
Old Hydroclarifier																	
TW-40	UBZ-4	↔	↓	↔	↔	↓	↔	↑	↔	↔	↓	↔	↔	↔	↔	↑	↑
TW-43	UBZ-4	↔	↔	↔	↔	↔	↔	↓	↔	↔	↔	↔	↔	↔	↔	↔	↔
TW-44	LBZ-4	↔	↔	↔	↔	↔	↔	↓	↔	↔	↔	↑	↔	↔	↔	↑	↑

Notes:
 ↔ Concentrations relatively stable or no trend
 ↓ Concentrations decreased
 ↑ Concentrations increased
 Highlighted cells are locations with long and short-term increasing concentration trends

**TABLE 11
SUMMARY OF CONSTITUENT CONCENTRATION TRENDS AT POINT OF COMPLIANCE WELLS AND SODA CREEK**

Location	Formation	Cadmium		Fluoride		Manganese		Nitrate as N		Selenium		Chloride ^a		Molybdenum ^a		Sulfate ^a	
		1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009	1991-2007	2005-2009
Remediation Goal (mg/L)		0.005		4		0.18		10		0.05		n/a		n/a		n/a	
Groundwater																	
Production Wells																	
PW-01	UBZ-4/LBZ-4	↓	↑ N	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ N	↔	↑	↔	↑	↔	↑
PW-02	UBZ-4/LBZ-4	↓	↑ N	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↑	↑	↑	↔	↑
PW-03	UBZ-4/LBZ-4	↓	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↑	↔	↔	↔	↑
Southern Plant Fence Line																	
TW-20	UBZ-2	↔	↓ Y	↓	↔ Y	↔	↔ Y	↔	↓ Y	↔	↓ N	↔	↓	↔	↓	↔	↓
TW-34	LBZ-2	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↓	↔	↓	↔	↓
TW-35	LBZ-2	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔ Y	↔	↔	↔	↔	↔	↔
TW-39	UBZ-2	↓	↑ N	↓	↑ Y	↔	↔ Y	↔	↓ Y	↓	↑ N	↓	↑	↓	↑	↔	↑
Southern Boundary																	
TW-53	UBZ-2	↔	↔ Y	↔	↑ Y	↔	↔ Y	↔	↑ Y	↔	↑ N	↔	↔	↑	↔	↑	↑
TW-54	UBZ-2	↔	↔ Y	↓	↑ N(?) ^c	↔	↔ Y	↔	↔ Y	↔	↓ N	↔	↓	↓	↑	↔	↓
TW-55	UBZ-2	↔	↔ Y	↔	↑ Y	↔	↔ Y	↔	↔ Y	↔	↓ Y	↔	↓	↔	↔	↔	↓
Mormon A Spring ^b	UBZ-2	↔	↑ N	↔	↑ Y	↔	↔ Y	↔	↔ Y	↔	↑ N	↔	↑	↔	↔	↑	↑
Harris Well	UBZ-2	↔	↔ Y	↔	↑ N	↔	↔ Y	↔	↔ Y	↔	↔ N	↔	↔	↔	↑	↑	↓
Surface Water/Effluent Discharge																	
Soda Creek^d		2001-2007		2001-2007		2001-2007		2001-2007		2001-2007		2001-2007		2001-2007		2001-2007	
Soda Up Station	na	↔	↔ Y	↔	↔ Y	↔	↔	↔	↔ Y	↔	↔ Y	↔	↔	↔	↔	↔	↔
Soad Weir Station	na	na	↔ Y	na	↔ Y	na	↑ N*	na	↔ Y	na	↔ Y	na	↔	na	↔	na	↔
Soda Down Station	na	↔	↔ Y	↔	↑ Y	↔	↔ Y	↔	↑ Y	↔	↑ N	↔	↔	↔	↔	↔	↑
Discharge		2000-2007		2000-2007		2000-2007		2000-2007		2000-2007		2000-2007		2000-2007		2000-2007	
Effluent Discharge	na	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↓	↑	↔	↑	↔	↑

- a. Constituents included for illustrative purposes only, no remediation goal
- b. Proposed alternative point of compliance for Harris Well
- c. Fluoride was detected in the primary sample at a concentration above the remediation goal, but was detected in the split sample at a concentration below the remediation goal.
- d. Long-term trends from 2000-2007 for effluent discharge and 2001-2007 for Soda Creek. Soda Weir station established in 2005.

Highlighted cells are locations with long and short-term increasing concentration trends

* Natural Background

- ↔ Concentrations relatively stable or no trend
- ↓ Concentrations decreased overall
- ↑ Concentrations increased overall
- Y Equal to or less than EPA Remediation Goal in May-June 2009
- N Greater than EPA Remediation Goal in May-June 2009

TABLE 12
MAY - JUNE 2009 RESULTS COMPARED TO REMEDIATION GOALS

Location	Cadmium (mg/L)	Q	Fluoride (mg/L)	Q	Manganese (mg/L)	Q	Nitrate and Nitrite as N (mg/L)	Q	Selenium (mg/L)	Q
REMEDIATION GOAL	0.005		4		0.18		10		0.05	
Groundwater										
Harris Well	0.00096	U	6.48	J	0.0013	J	5.76	J	0.244	
PW-01	0.0589		0.833		0.0015	U	4.94		0.0687	J
PW-02	0.006		0.437		0.0015	U	4.58		0.0226	J
PW-03	0.0016	J	0.491		0.0013	U	4.27		0.0168	
PW-04	0.00096	U	0.259		0.0013	U	4.23		0.0015	
TW-20	0.0048		2.13		0.0015	U	8.81		0.0994	
TW-20 (split)	0.003		1.8		0.05	U	8.93		0.12	
TW-34	0.00013	U	0.378		0.17		0.0904		0.0051	J
TW-35	0.00026	J	0.147		0.146		0.05	U	0.00079	J
TW-39	0.0168		3.76		0.0015	U	7.89	J	0.432	
TW-39 (duplicate)	0.017		3.34		0.0015	U	8.63		0.413	
TW-53	0.00096	U	3.65	J	0.0013	U	6.1	J	0.199	
TW-54	0.00096	U	4.21	J	0.0034	J	7.35	J	0.136	
TW-54 (split)	0.002	U	2.8		0.001		6.81		0.17	
TW-55	0.00096	U	1.48	J	0.0013	U	3.09	J	0.0309	
TW-55 (duplicate)	0.00096	U	0.714	J	0.0013	U	3.12	J	0.0313	
Surface Water										
Soda Down	0.0036		1.04	J	0.105		2.14	J	0.0694	J
Soda Up	0.00096	U	0.389		0.207*		0.4		0.0006	U

Note: Results in bold indicate remediation goal is exceeded.

* natural background

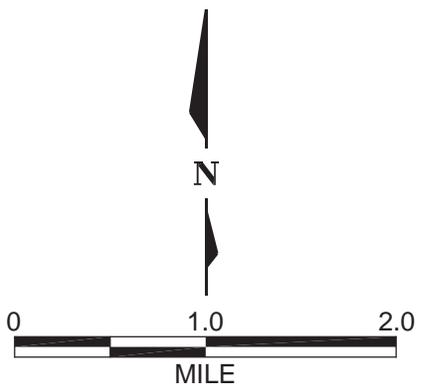
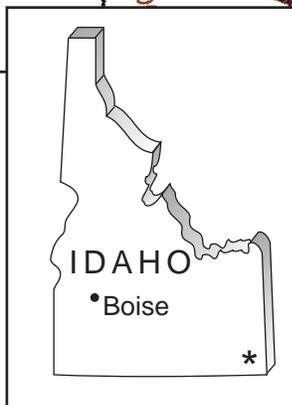
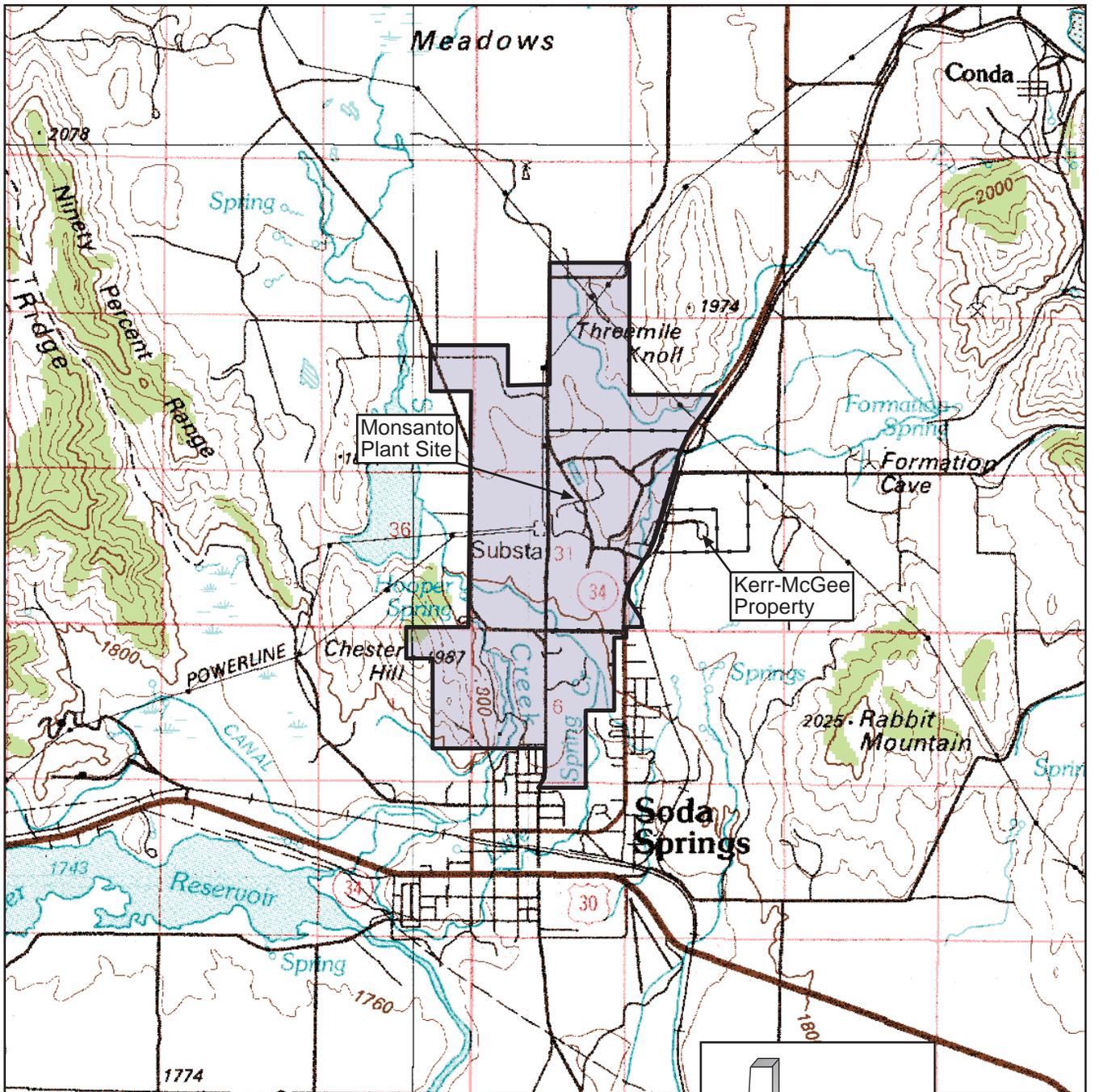
Notes:

J - The result is an estimated value.

UJ - The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

U - The analyte was not detected at the method detection limit.

FIGURES



SOURCE: Topographic map of the USGS Soda Springs Quadrangle (1:100,000) 1982.

FIGURE 1
MONSANTO PLANT VICINITY MAP
 MONSANTO/2009 ANNUAL REPORT/ID



LEGEND:

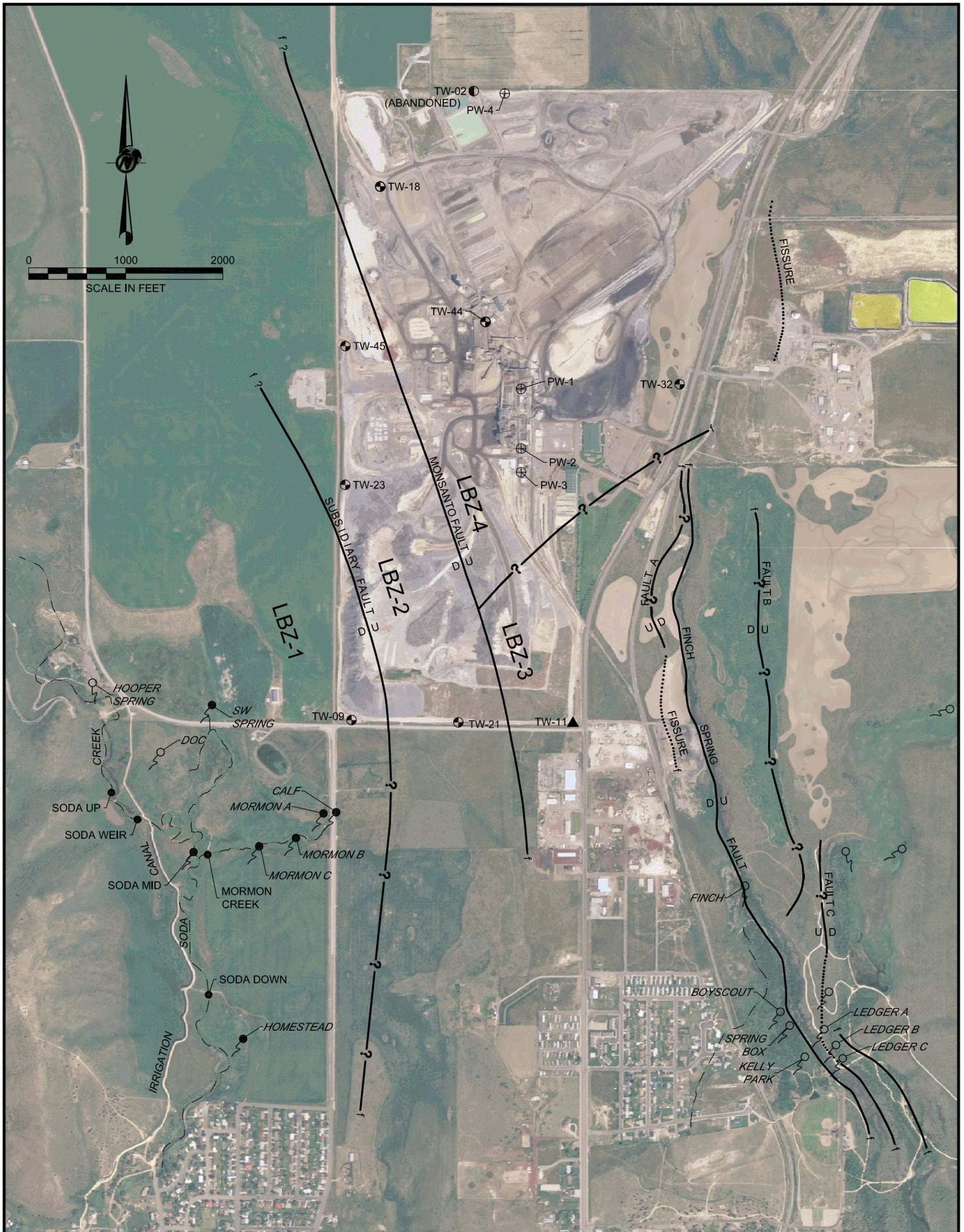
- f ——— U ——— f FAULT
- f ——— U D ——— f FAULT (INFERRED)
- f f FISSURE
- UBZ-1 GROUNDWATER ZONE

- TW-60 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
- LEWIS MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
- ▲ TW-56 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
- TW-33 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
- ⊕ PW-1 PRODUCTION WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4

- MORMON A SPRING LOCATION WITH NAME (WHERE KNOWN)
- DOC SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN)
- MORMON CREEK SURFACE WATER LOCATION WITH NAME

FIGURE 2
**LOCATION OF SPRINGS AND WELLS
 IN THE UPPER BASALT ZONE**
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).



LEGEND:		
	f	FAULT
	f	FAULT (INFERRED)
	f	FISSURE
	LBZ-1	GROUNDWATER ZONE
	●	TW-09 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-1
	■	TW-21 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-2
	▲	TW-11 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-3
	●	TW-44 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-4
	⊕	PW-1 PRODUCTION WELL LOCATION WITH NAME
	●	MORMON A SPRING LOCATION WITH NAME (WHERE KNOWN)
	○	DOC SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN)
	●	MORMON CREEK SURFACE WATER LOCATION WITH NAME

FIGURE 3
LOCATION OF WELLS
IN THE LOWER BASALT ZONE
 MONSANTO/2009 ANNUAL REPORT/ID

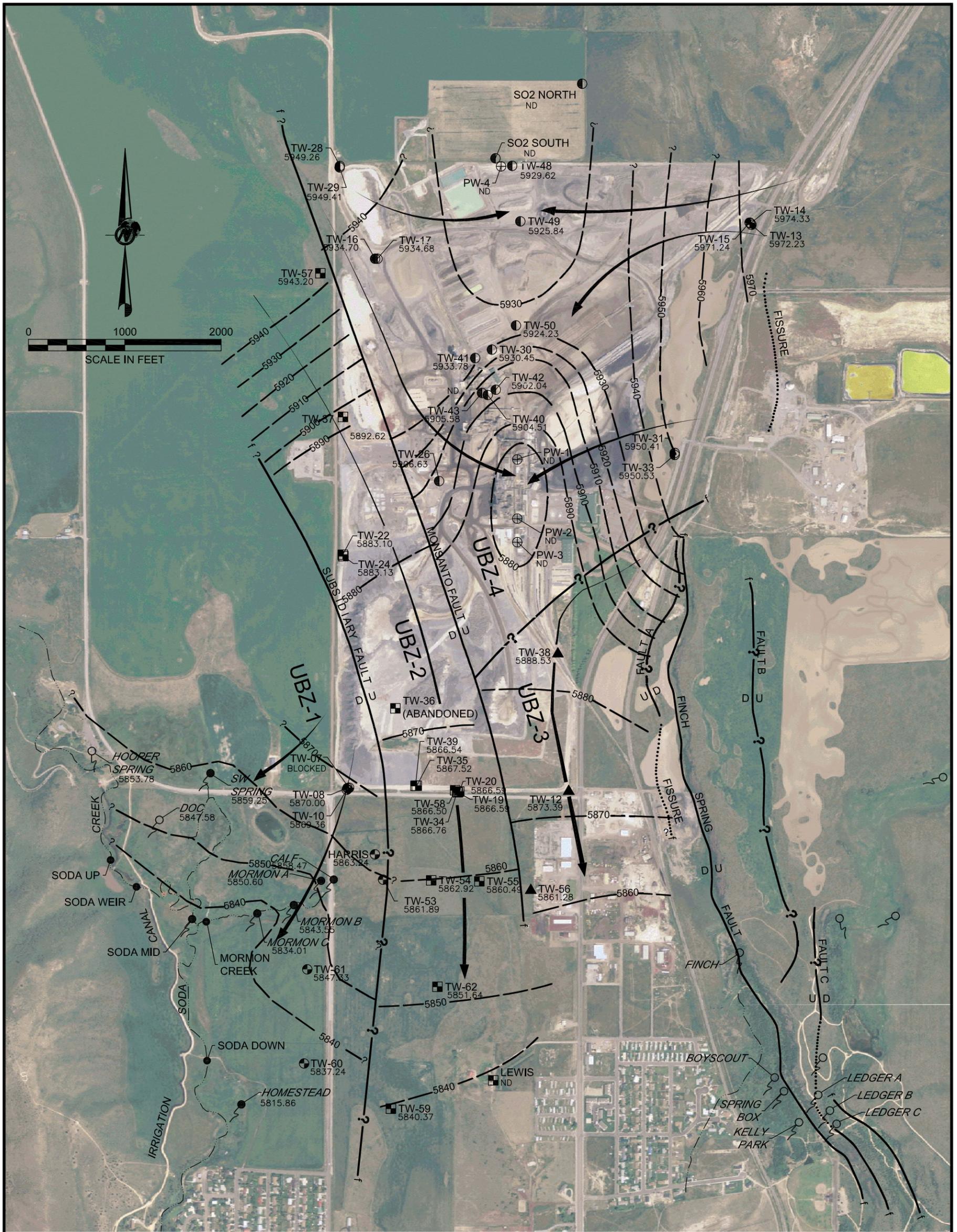
SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).



- LEGEND:**
- MONSANTO PROPERTY BOUNDARY (APPROXIMATE)
 - x----- PLANT PERIMETER FENCE
 - ~~~~~ CREEK / IRRIGATION DITCH
 - FACILITY AREA
 - ORIGINAL SOURCE AREA

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).
 WELL LOCATIONS BY GOLDER ASSOCIATES, (12/12/2001).

FIGURE **4**
MONSANTO
FACILITY MAP
 MONSANTO/2009 ANNUAL REPORT/ID

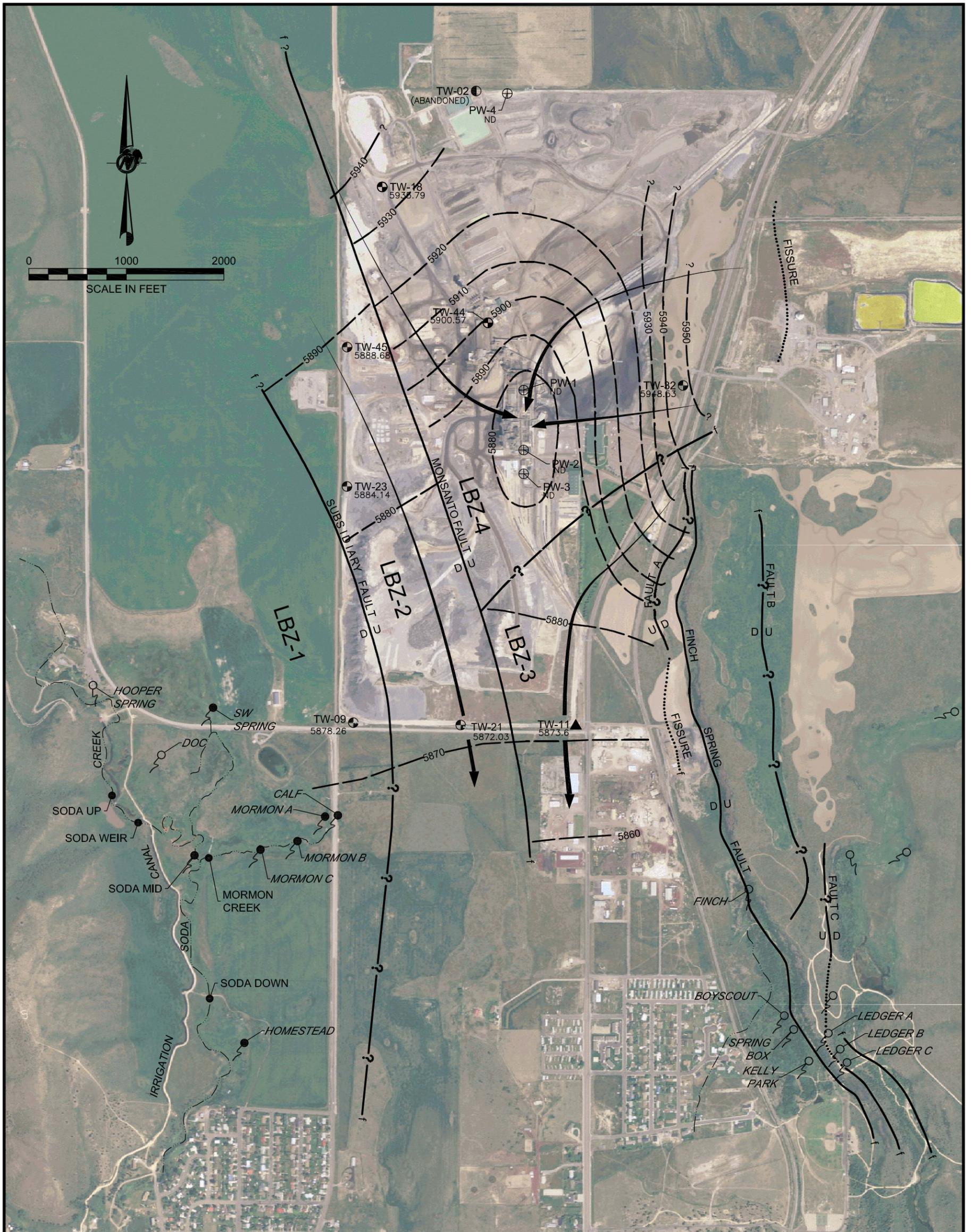


LEGEND:

f ——— f	FAULT	● MORMON A	SPRING LOCATION WITH NAME (WHERE KNOWN)	● TW-60	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
f ——— f	FAULT (INFERRED)	○ DOC	SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN)	■ TW-59	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
f ····· f	FISSURE	● MORMON CREEK	SURFACE WATER LOCATION WITH NAME	▲ TW-56	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
UBZ-1	GROUNDWATER ZONE			● TW-28	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
←	GROUNDWATER FLOW DIRECTION			⊕ PW-1	PRODUCTION WELL LOCATION WITH NAME
— 5840 —	GROUNDWATER CONTOUR (10 FOOT INTERVAL)				
					ND = NO DATA

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).
 WELL LOCATIONS BY GOLDER ASSOCIATES, (12/12/2001).

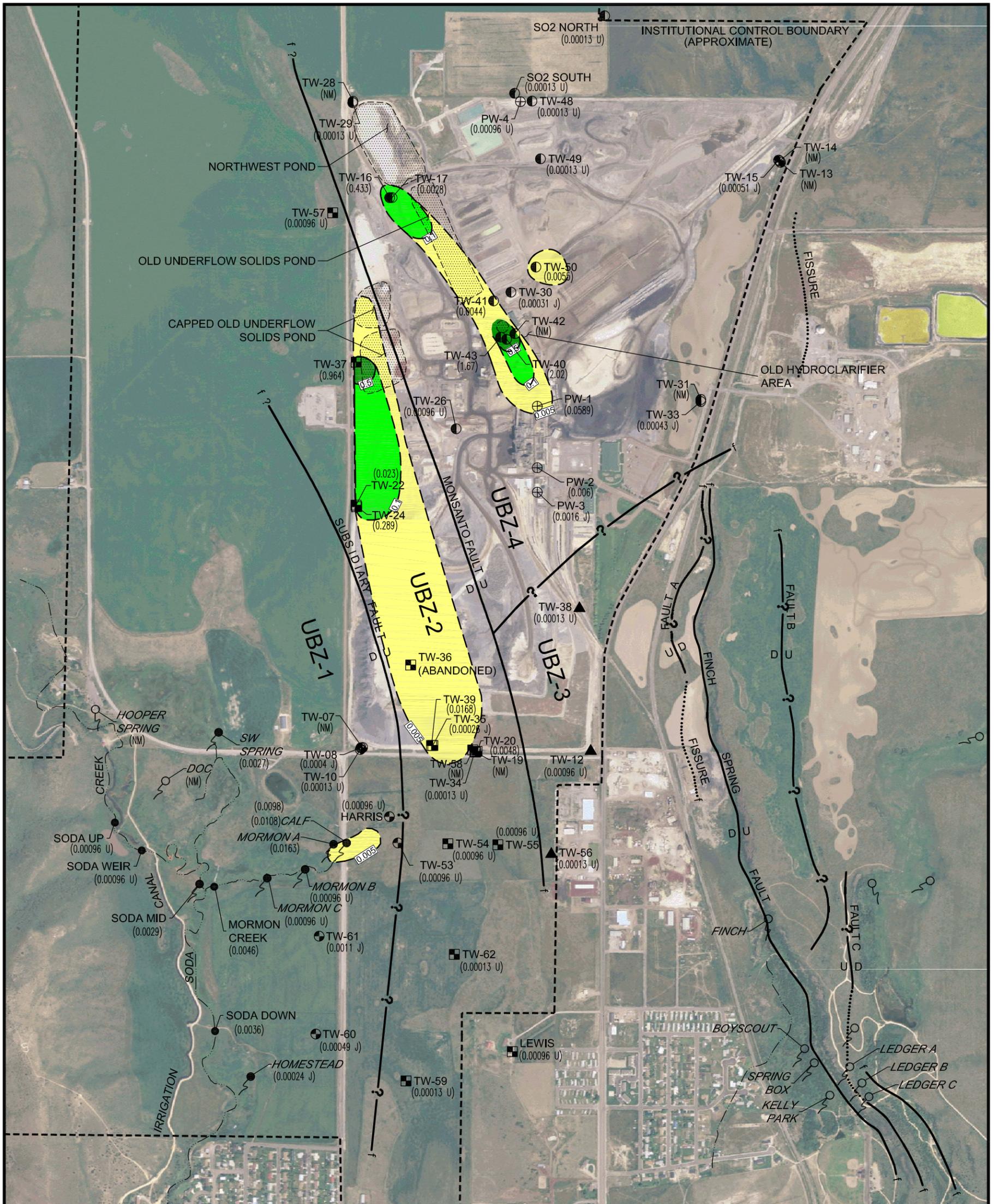
FIGURE 5
GROUNDWATER ELEVATION IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID



LEGEND:	
	FAULT
	FAULT (INFERRED)
	FISSURE
	GROUNDWATER ZONE
	GROUNDWATER FLOW DIRECTION
	GROUNDWATER CONTOUR (10 FOOT INTERVAL)
	MORMON A
	DOC
	MORMON CREEK
	SPRING LOCATION WITH NAME (WHERE KNOWN)
	SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN)
	SURFACE WATER LOCATION WITH NAME
	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-1
	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-2
	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-3
	MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE LBZ-4
	PRODUCTION WELL LOCATION WITH NAME
	GROUNDWATER ELEVATION (FEET) WITH QUALIFIER (IF ANY) ND = NO DATA

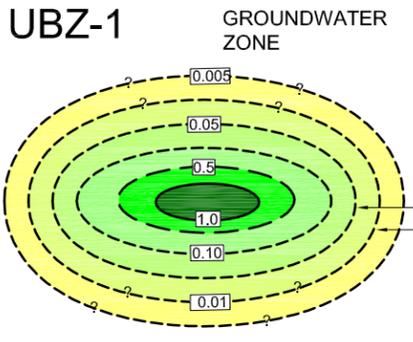
SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).
 WELL LOCATIONS BY GOLDER ASSOCIATES, (12/12/2001).

FIGURE 6
GROUNDWATER ELEVATION IN THE LOWER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID



LEGEND:

- f — U — f FAULT
- f — U D — f FAULT (INFERRED)
- f - - - f FISSURE



- SPRING LOCATION WITH NAME (WHERE KNOWN) **MORMON A** (0.015)
- SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN) **DOC**
- SURFACE WATER LOCATION WITH NAME **MORMON CREEK** (NM)

- CHEMICAL ISOPLETH (mg/L)
DASHED WHERE APPROXIMATE
? WHERE UNKNOWN

- TW-60 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1 (<0.002 U)
- TW-59 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2 (<0.002 U)
- TW-56 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3 (<0.002 U)
- TW-28 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4 (<0.002 U)
- ⊕ PW-1 PRODUCTION WELL LOCATION WITH NAME (0.041)
- SAMPLE: CHEMICAL CONCENTRATION (mg/L) WITH QUALIFIER (IF ANY)
(NM) = NOT MEASURED
(...U) = NOT DETECTED
(...J) = ESTIMATED

SOURCE:
AERIAL PHOTO FROM MONSANTO (5/2/2003).
SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).

FIGURE 7
CADMIUM IN THE
UPPER BASALT ZONE (JUNE 2009)
MONSANTO/2009 ANNUAL REPORT/ID

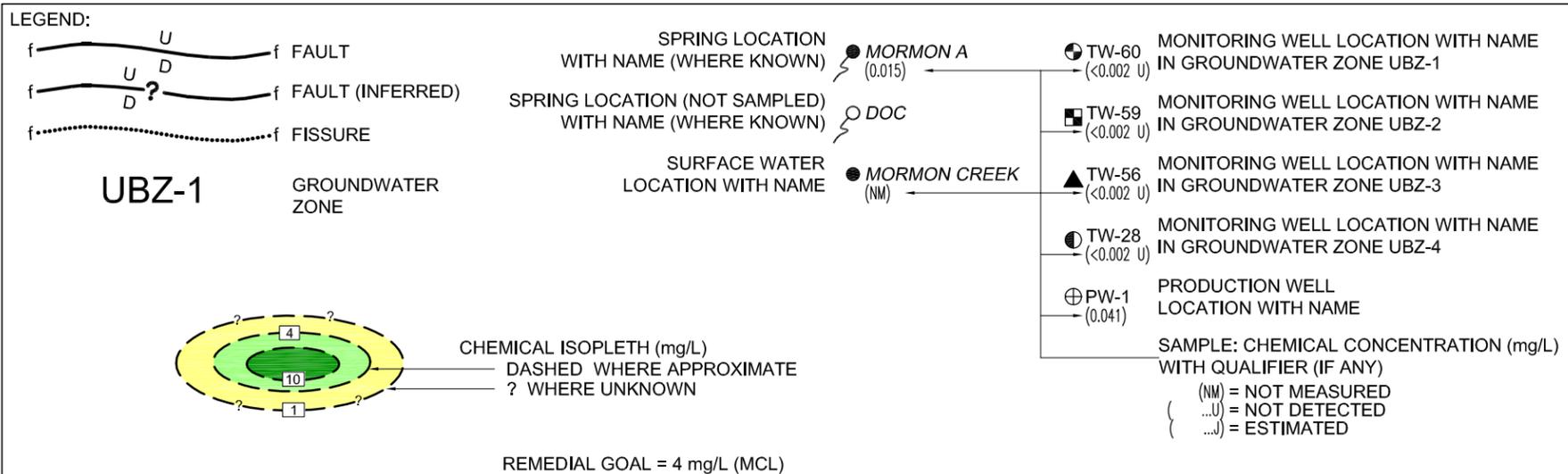
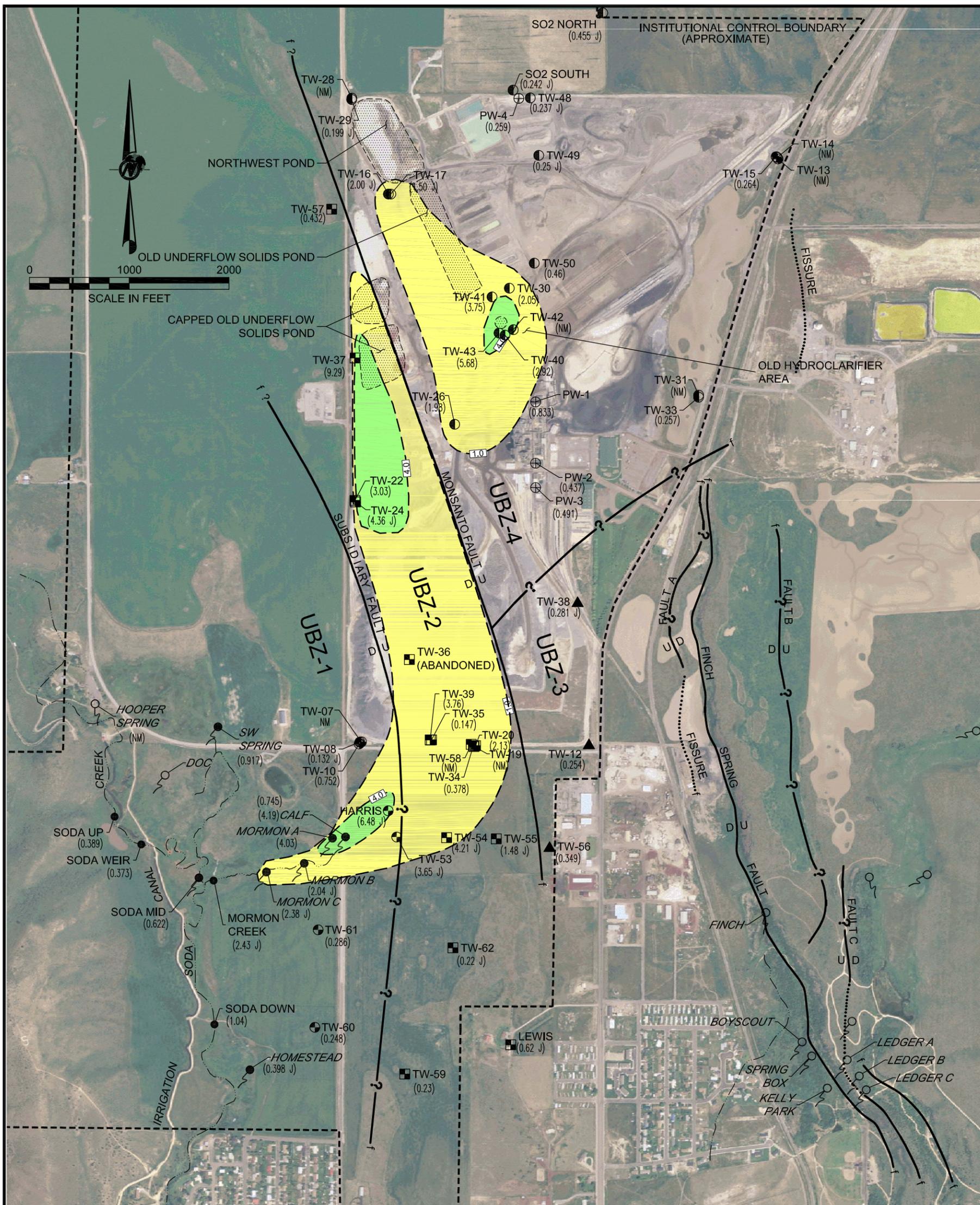
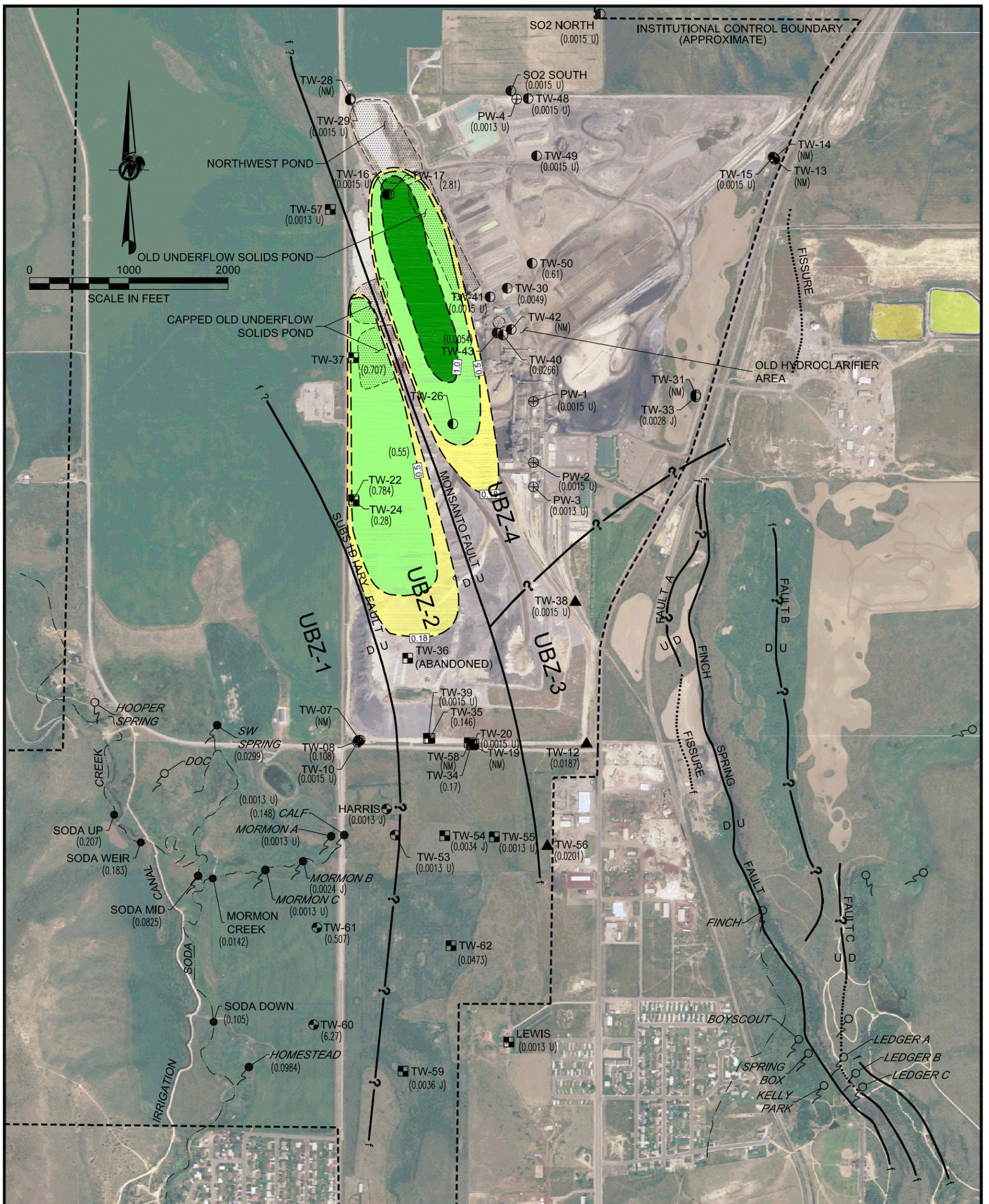


FIGURE 8
FLOURIDE IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).



LEGEND:

f — U — f FAULT
 f — U D — f FAULT (INFERRED)
 f - - - f FISSURE

UBZ-1 GROUNDWATER ZONE

● SPRING LOCATION WITH NAME (WHERE KNOWN) **MORMON A** (0.015)
 ○ SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN) **DOC**
 ● SURFACE WATER LOCATION WITH NAME **MORMON CREEK** (NM)

● TW-60 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
 ■ TW-59 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
 ▲ TW-56 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
 ● TW-28 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
 ⊕ PW-1 (0.041) PRODUCTION WELL LOCATION WITH NAME

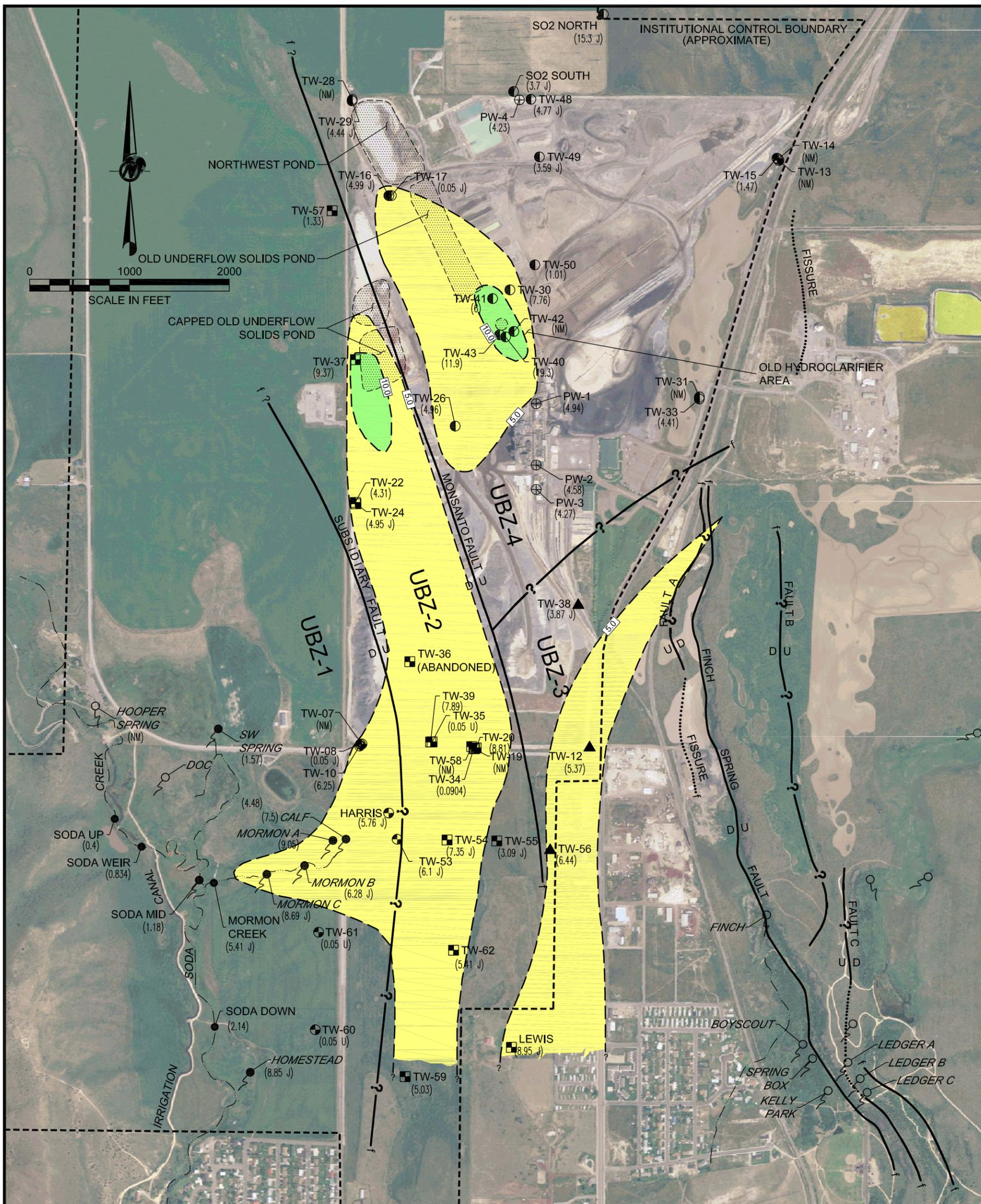
○ CHEMICAL ISOPLETH (mg/L)
 - - - DASHED WHERE APPROXIMATE
 ? WHERE UNKNOWN

REMEDIAL GOAL = 0.18 mg/L (RBC)

○ (NM) = NOT MEASURED
 (ND) = NO DATA
 (...U) = NOT DETECTED
 (...J) = ESTIMATED

FIGURE 9
MANGANESE IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).
 WELL TOPOLOGY BY GOLDER ASSOCIATES, (12/12/2001).



LEGEND:

f — U — f FAULT
 f — D — f FAULT (INFERRED)
 f - - - f FISSURE

UBZ-1 GROUNDWATER ZONE

● SPRING LOCATION WITH NAME (WHERE KNOWN) **MORMON A** (0.015)
 ○ SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN) **DOC**
 ● SURFACE WATER LOCATION WITH NAME **MORMON CREEK** (NM)

● TW-60 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
 ■ TW-59 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
 ▲ TW-56 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
 ● TW-28 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
 ⊕ PW-1 (0.041) PRODUCTION WELL LOCATION WITH NAME

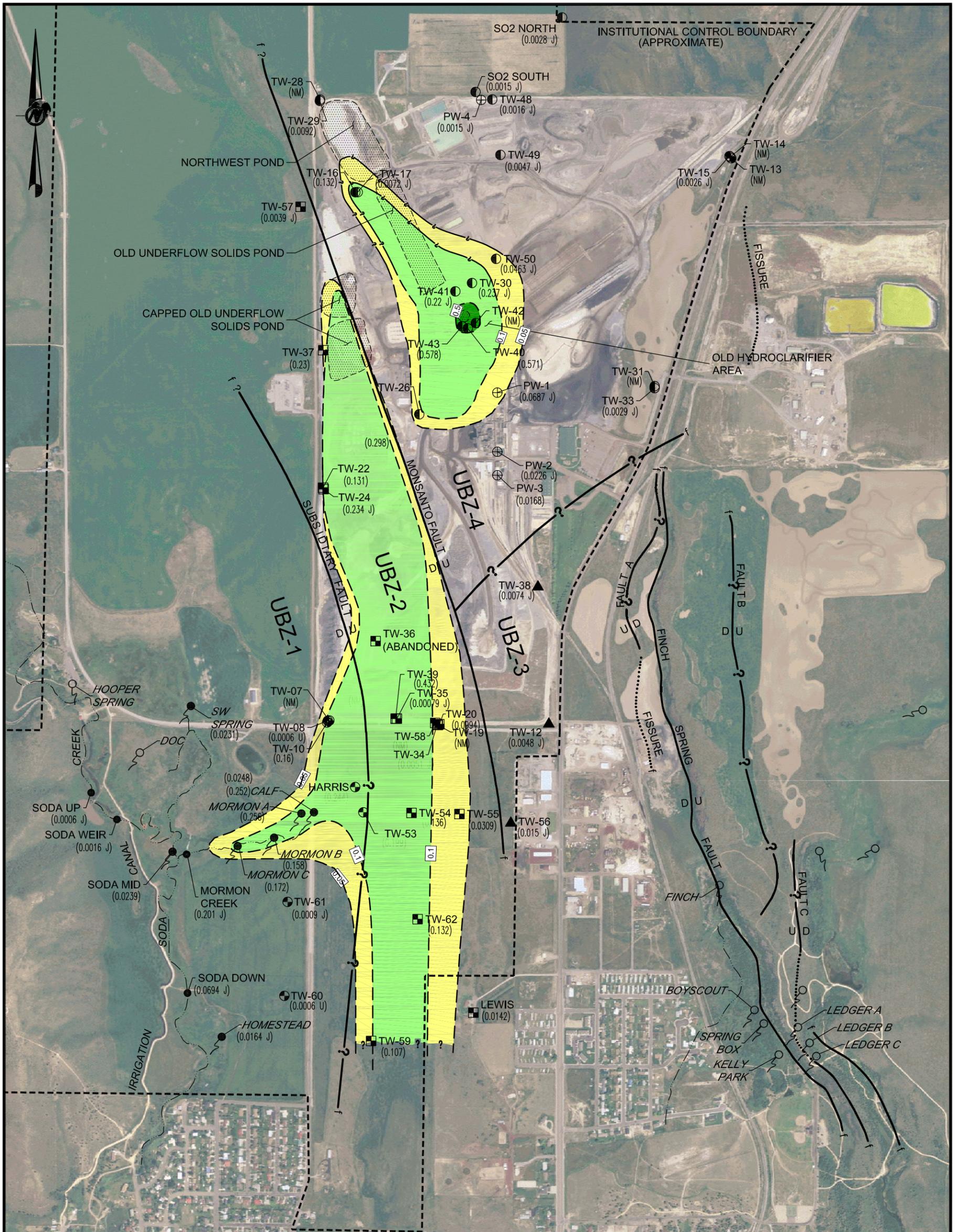
○ CHEMICAL ISOPLETH (mg/L)
 DASHED WHERE APPROXIMATE
 ? WHERE UNKNOWN

REMEDIAL GOAL = 10 mg/L (MCL)

SAMPLE: CHEMICAL CONCENTRATION (mg/L) WITH QUALIFIER (IF ANY)
 (NM) = NOT MEASURED
 (...U) = NOT DETECTED
 (...J) = ESTIMATED

FIGURE 10
NITRATE (AS N) IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).



LEGEND:

f — U — f FAULT
 f — U D — f FAULT (INFERRED)
 f — D — f FISSURE

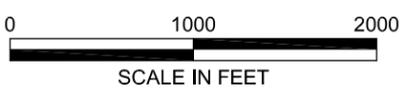
UBZ-1
 GROUNDWATER ZONE

SPRING LOCATION WITH NAME (WHERE KNOWN) ● MORMON A (0.015)
 SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN) ○ DOC
 LOCATION WITH NAME ● MORMON CREEK (NM)

● TW-60 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
 ● TW-59 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
 ● TW-56 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
 ● TW-28 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
 ⊕ PW-1 (0.041) PRODUCTION WELL LOCATION WITH NAME
 — () SAMPLE: CHEMICAL CONCENTRATION (mg/L) WITH QUALIFIER (IF ANY)

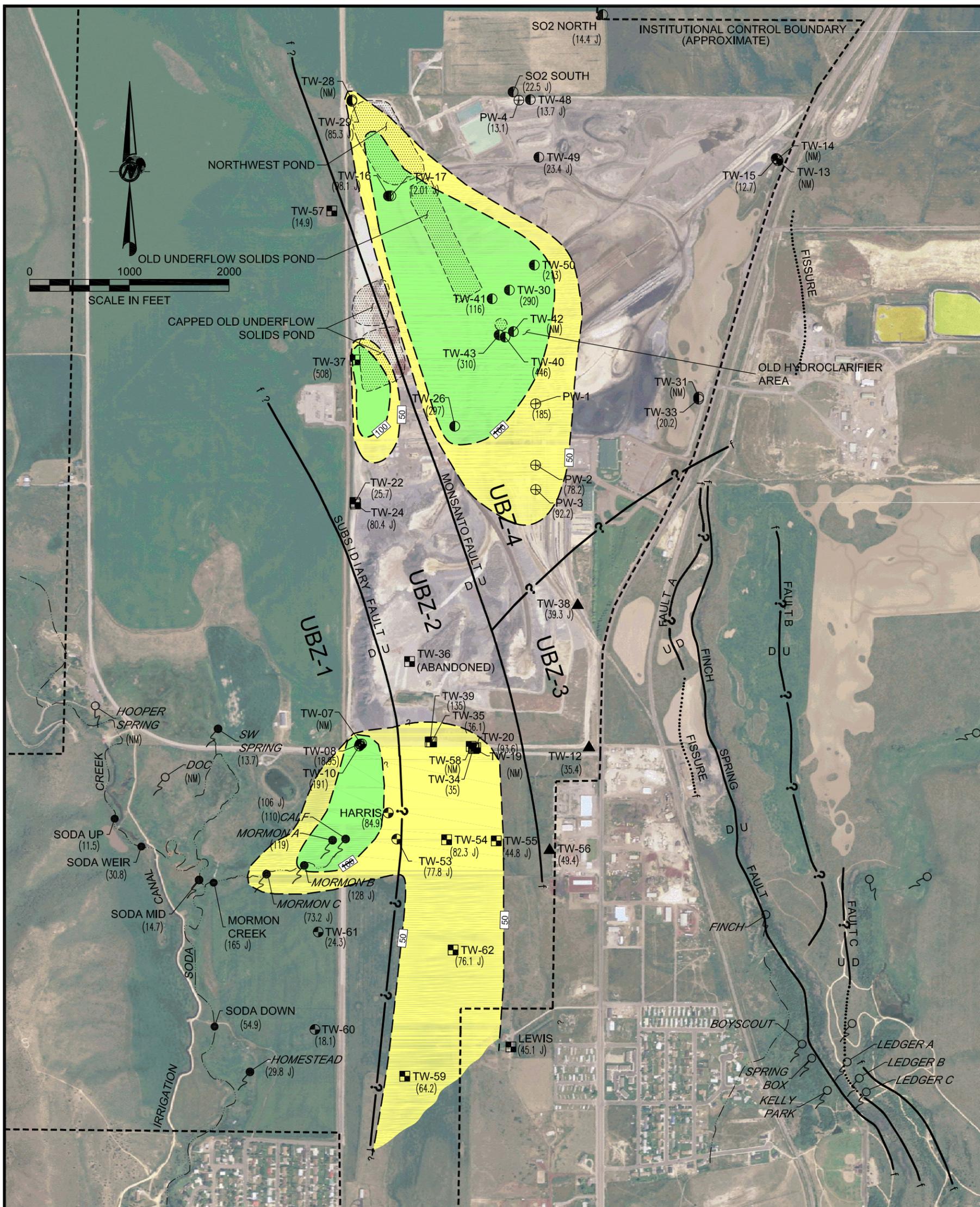
(NM) = NOT MEASURED
 (...U) = NOT DETECTED
 (...J) = ESTIMATED

○ 0.1 CHEMICAL ISOPLETH (mg/L)
 ○ 0.5
 ○ 0.05
 DASHED WHERE APPROXIMATE
 ? WHERE UNKNOWN
 REMEDIAL GOAL = 0.05 mg/L (MCL)



SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).

FIGURE 11
SELENIUM IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID



LEGEND:

f — U — f FAULT
 f — U D — f FAULT (INFERRED)
 f — D — f FISSURE

UBZ-1 GROUNDWATER ZONE

● SPRING LOCATION WITH NAME (WHERE KNOWN) **MORMON A** (0.015)
 ○ SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN) **DOC**
 ● SURFACE WATER LOCATION WITH NAME **MORMON CREEK** (NM)

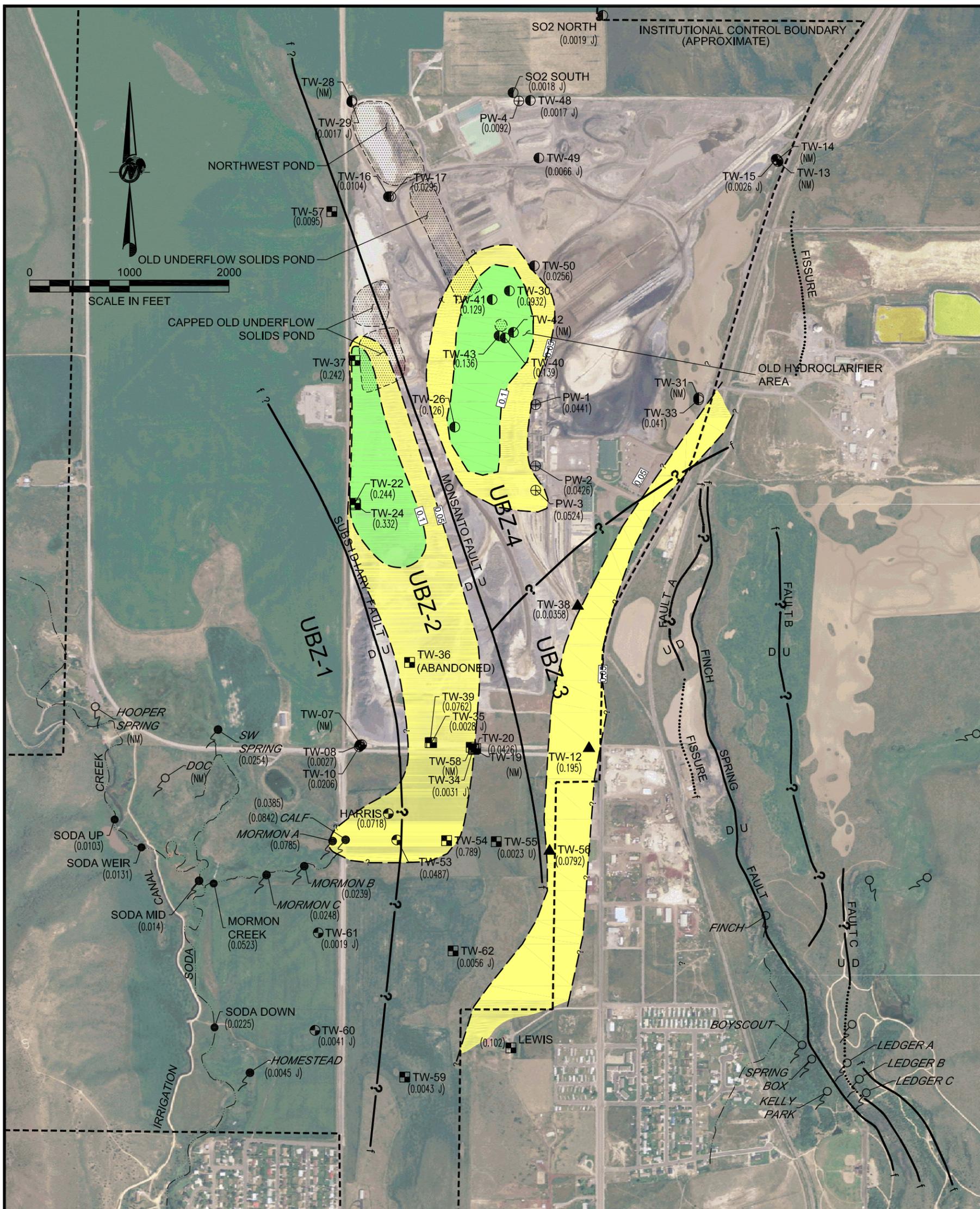
● TW-60 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
 ■ TW-59 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
 ▲ TW-56 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
 ● TW-28 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
 ⊕ PW-1 (0.041) PRODUCTION WELL LOCATION WITH NAME

○ CHEMICAL ISOPLETH (mg/L)
 DASHED WHERE APPROXIMATE
 ? WHERE UNKNOWN

○ (NM) = NOT MEASURED
 (...U) = NOT DETECTED
 (...J) = ESTIMATED

FIGURE 12
CHLORIDE IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).



LEGEND:

f — U — f FAULT
 f — D — f FAULT (INFERRED)
 f - - - f FISSURE

UBZ-1 GROUNDWATER ZONE

● SPRING LOCATION WITH NAME (WHERE KNOWN) **MORMON A** (0.015)
 ○ SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN) **DOC**
 ● SURFACE WATER LOCATION WITH NAME **MORMON CREEK (NM)**

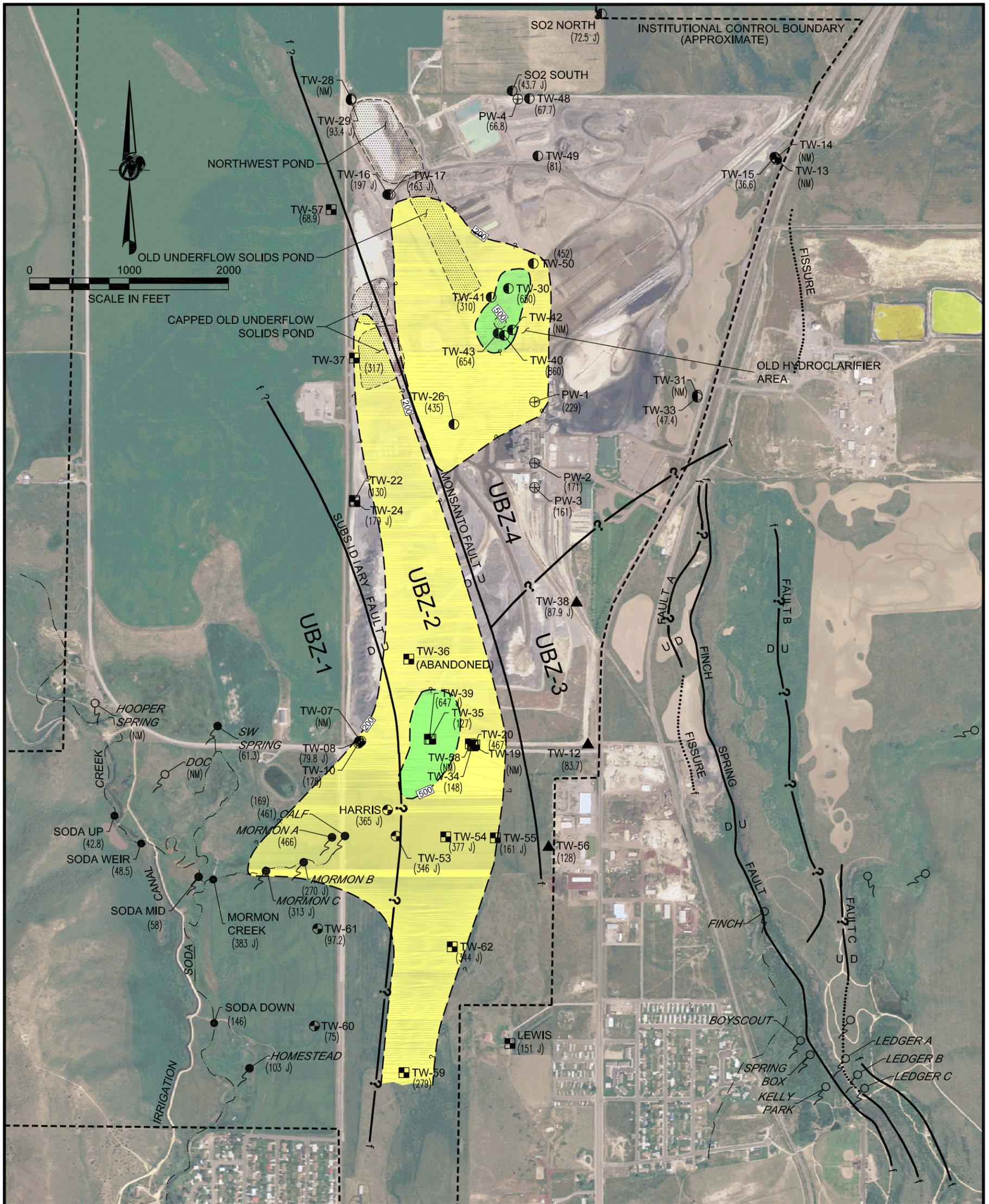
● TW-60 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
 ■ TW-59 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
 ▲ TW-56 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
 ● TW-28 (<0.002 J) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
 ⊕ PW-1 (0.041) PRODUCTION WELL LOCATION WITH NAME

○ CHEMICAL ISOPLETH (mg/L)
 - - - DASHED WHERE APPROXIMATE
 ? WHERE UNKNOWN

○ SAMPLE: CHEMICAL CONCENTRATION (mg/L) WITH QUALIFIER (IF ANY)
 (NM) = NOT MEASURED
 (...U) = NOT DETECTED
 (...J) = ESTIMATED

FIGURE 13
MOLYBDENUM IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).



LEGEND:

f — U — f FAULT
 f — D — f FAULT (INFERRED)
 f - - - f FISSURE

UBZ-1 GROUNDWATER ZONE

● SPRING LOCATION WITH NAME (WHERE KNOWN) **MORMON A** (0.015)
 ○ SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN) **DOC**
 ● SURFACE WATER LOCATION WITH NAME **MORMON CREEK** (NM)

● TW-60 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
 ■ TW-59 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
 ▲ TW-56 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
 ● TW-28 (<0.002 U) MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
 ⊕ PW-1 (0.041) PRODUCTION WELL LOCATION WITH NAME

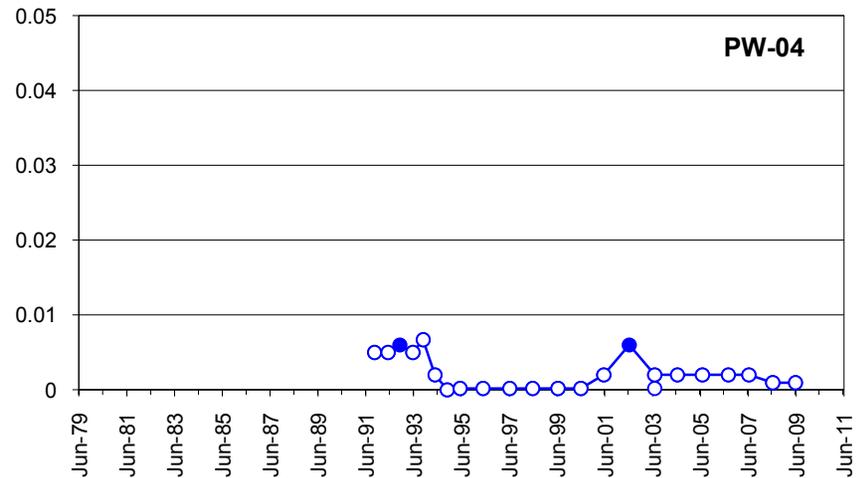
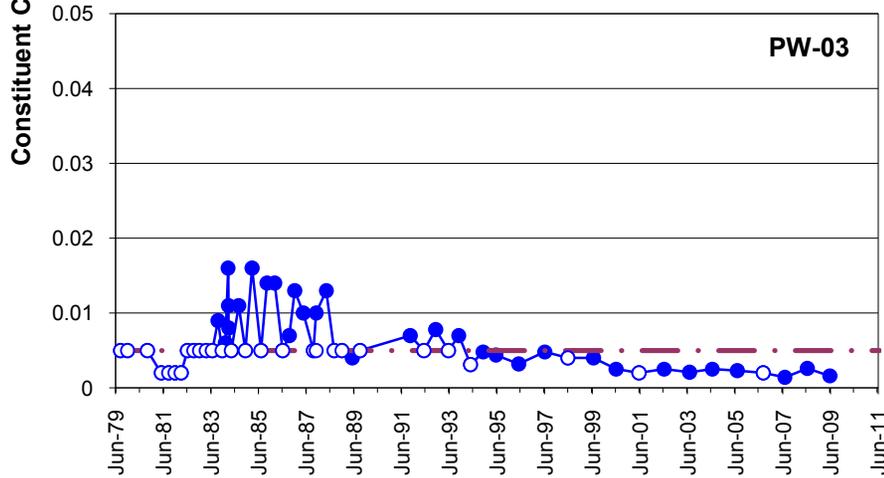
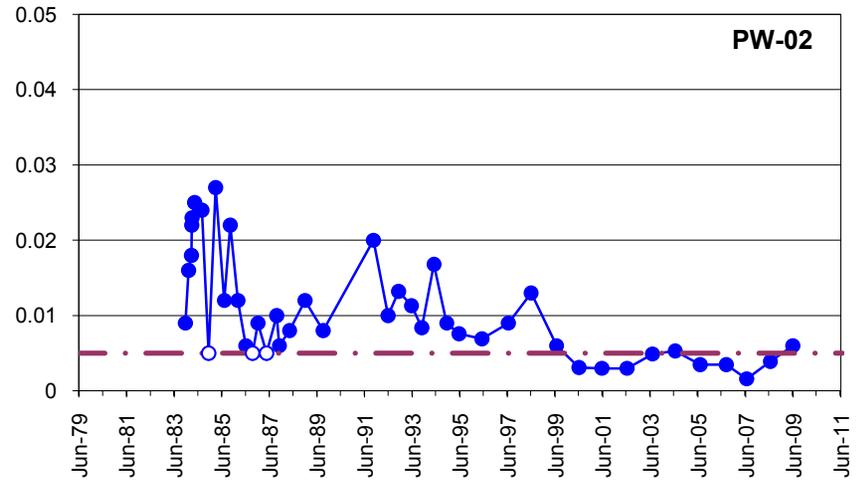
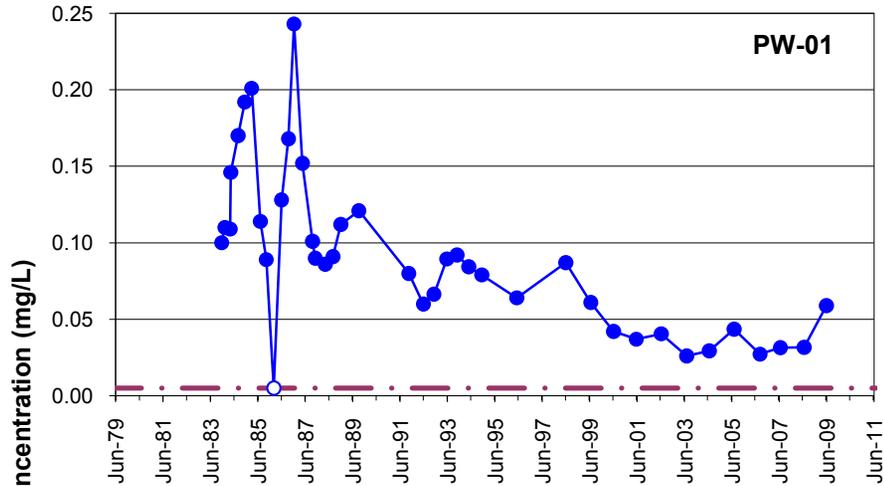
○ CHEMICAL ISOPLETH (mg/L)
 - - - DASHED WHERE APPROXIMATE
 ? WHERE UNKNOWN

○ SAMPLE: CHEMICAL CONCENTRATION (mg/L) WITH QUALIFIER (IF ANY)
 (NM) = NOT MEASURED
 (...U) = NOT DETECTED
 (...J) = ESTIMATED

FIGURE 14
SULFATE IN THE
UPPER BASALT ZONE (JUNE 2009)
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).

APPENDIX A
TIME-HISTORY GRAPHS FOR CADMIUM



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE

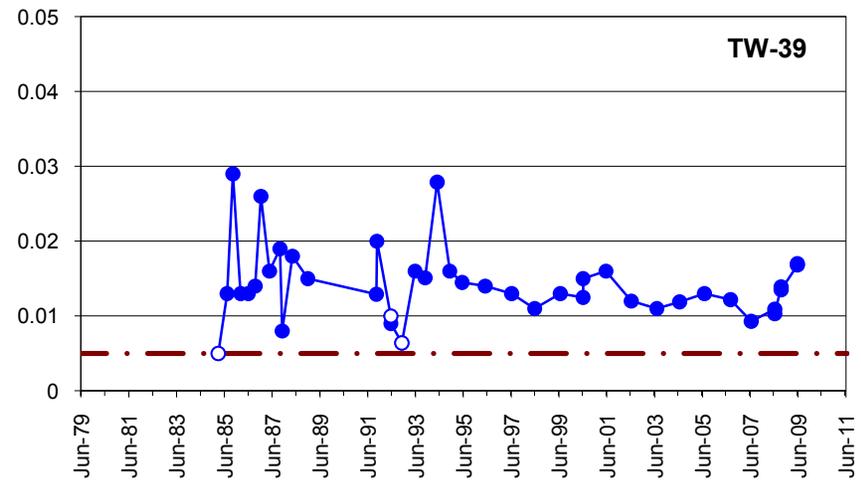
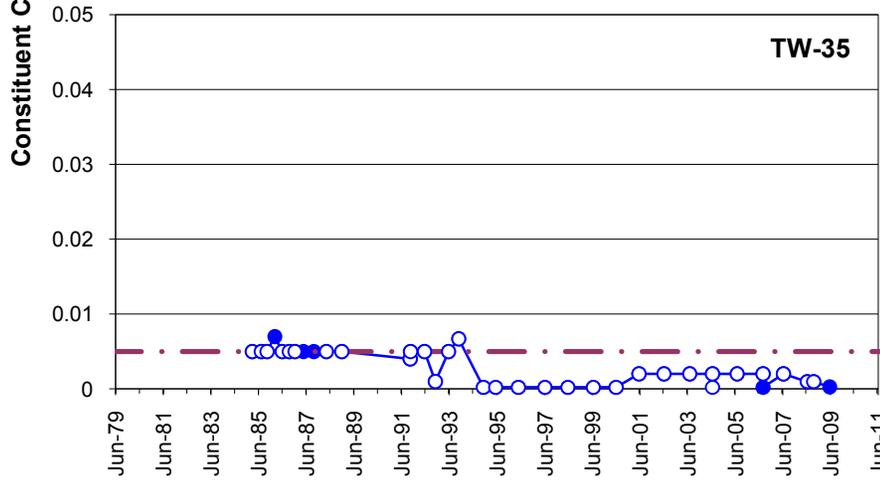
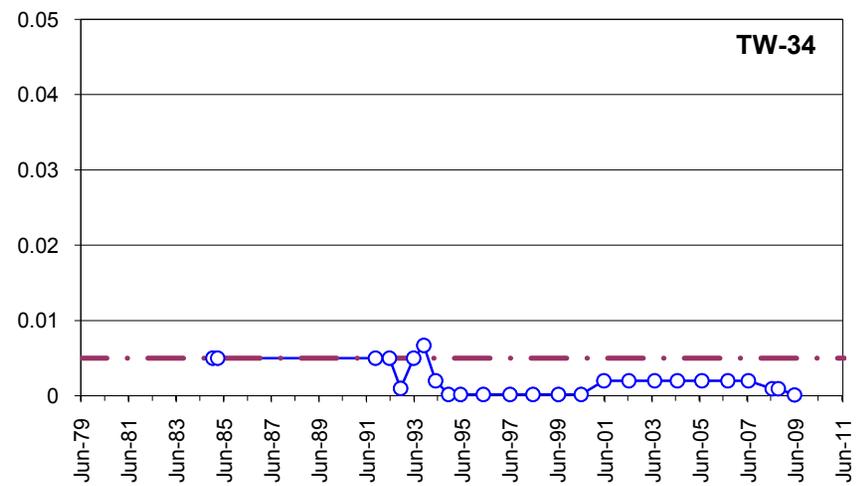
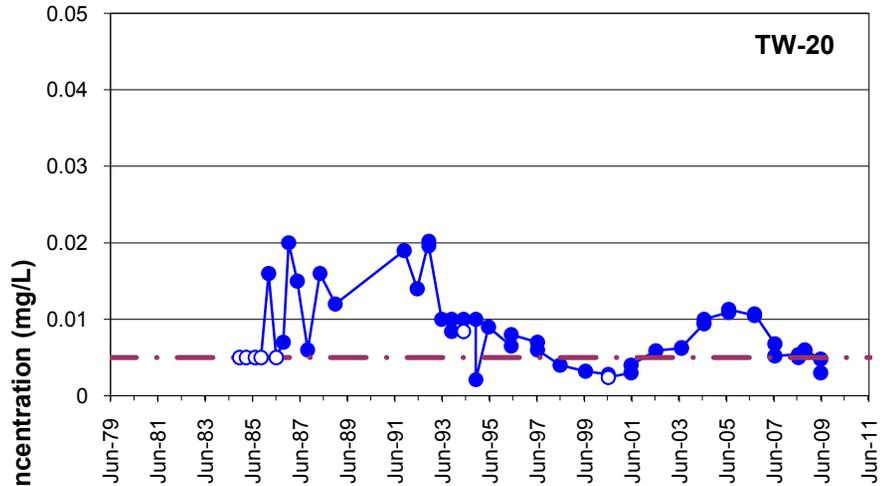
Cadmium in Production Wells

FIGURE A-1

- Constituent Concentration (mg/L)
- Non-Detects
- Cadmium Remediation Goal (0.005 mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



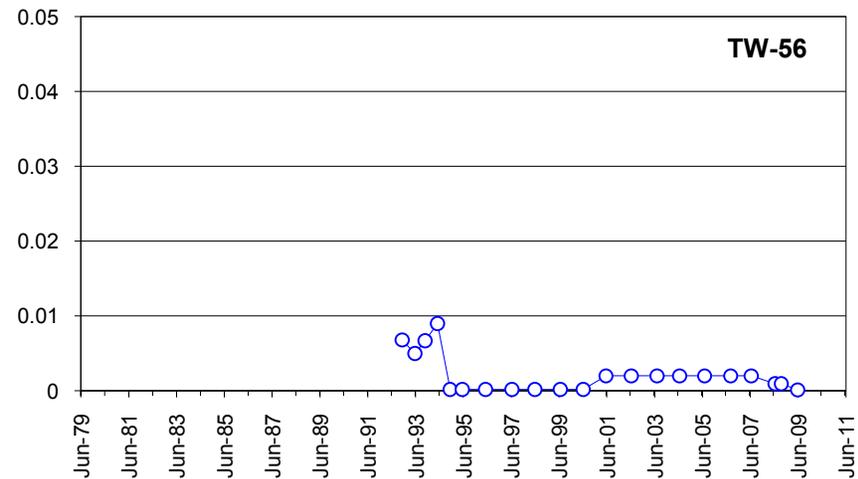
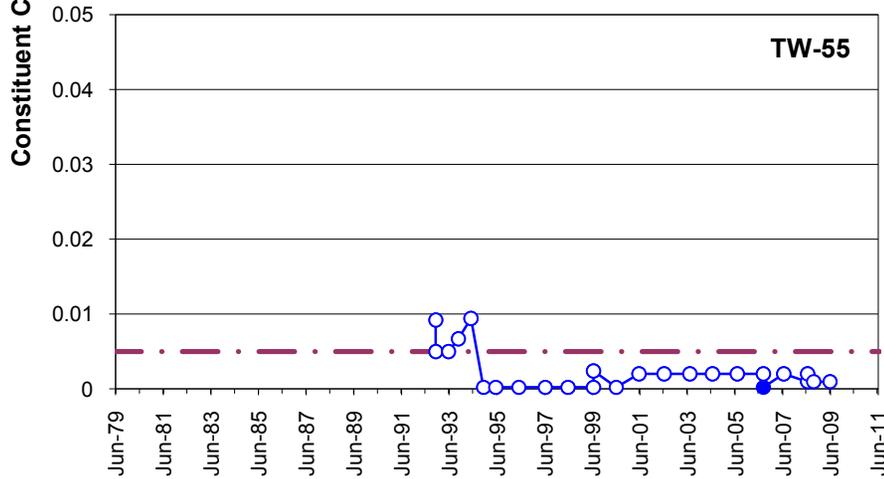
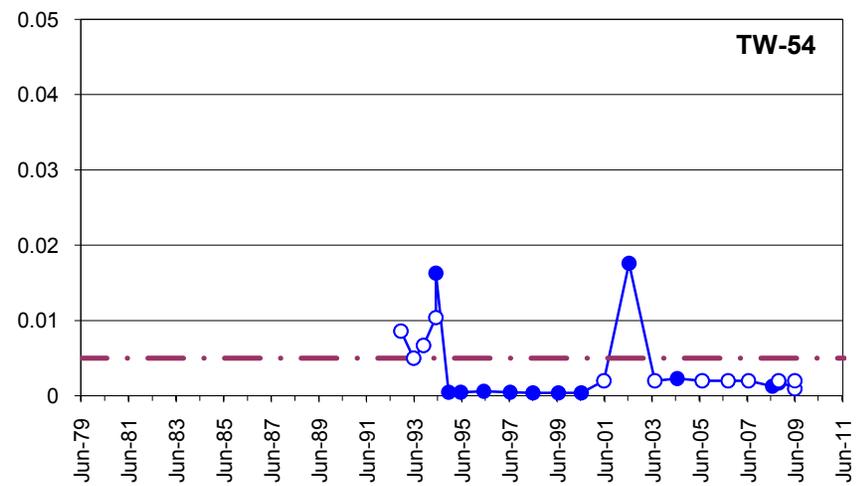
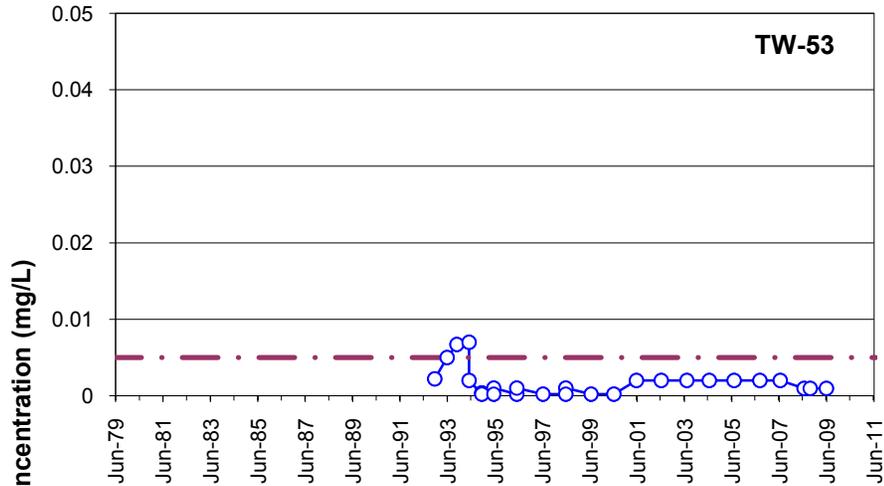
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in South Fenceline Wells		FIGURE A-2	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - - - Cadmium Remediation Goal (0.005 mg/L) 	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED



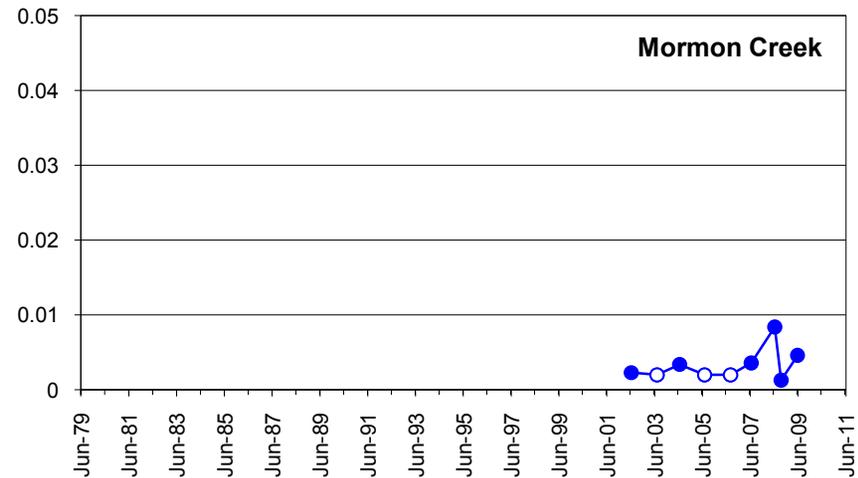
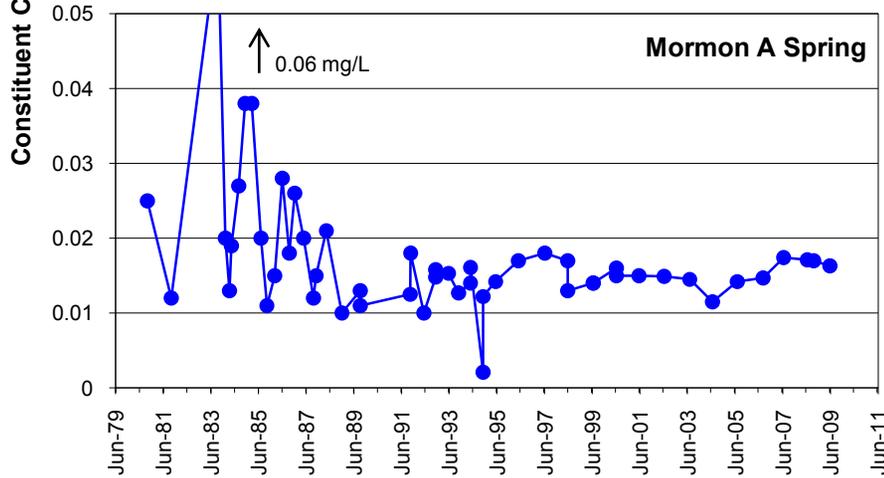
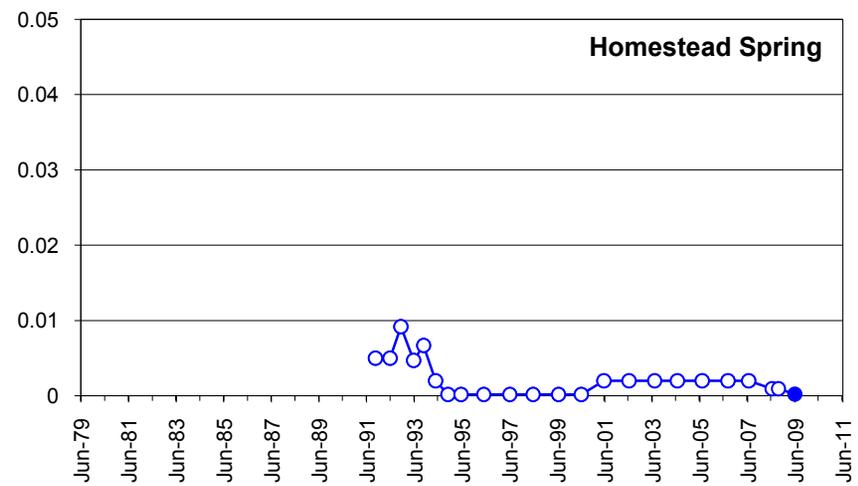
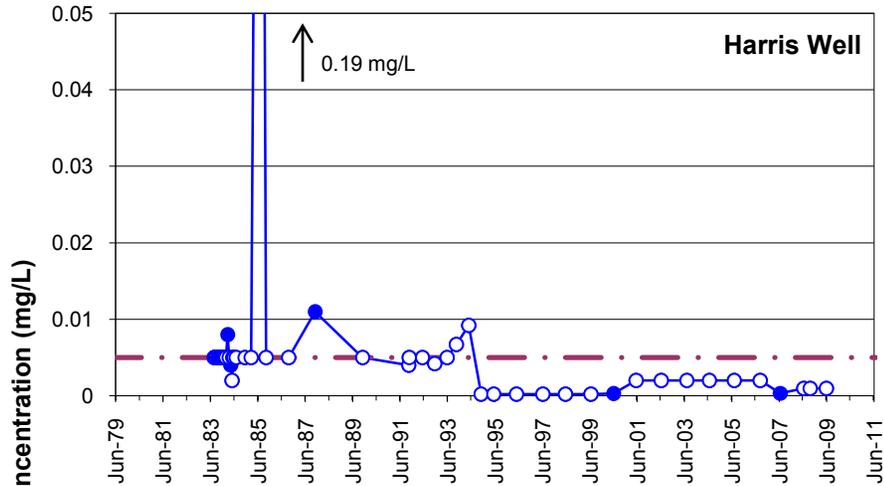
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in Southern Boundary Wells		FIGURE A-3	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - · - Cadmium Remediation Goal (0.005 mg/L) 	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED



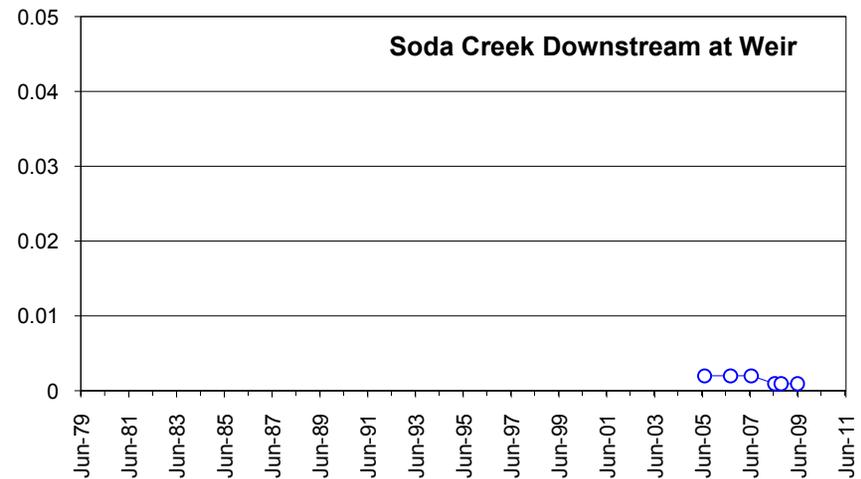
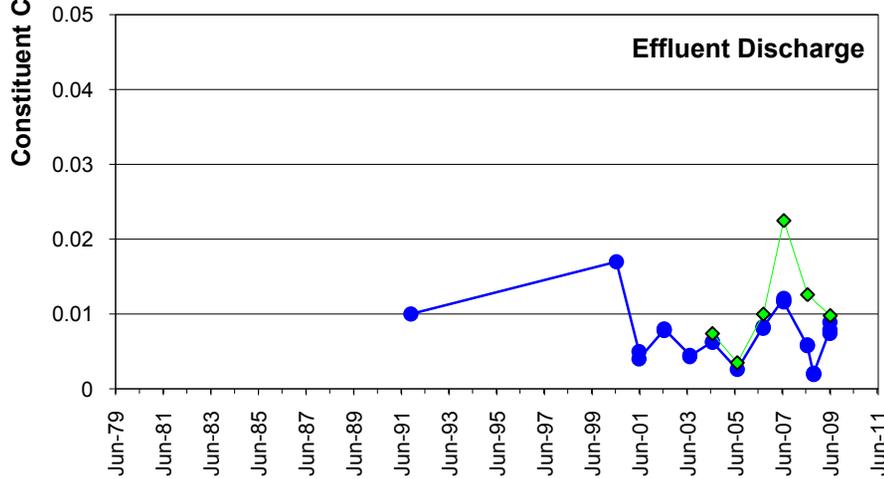
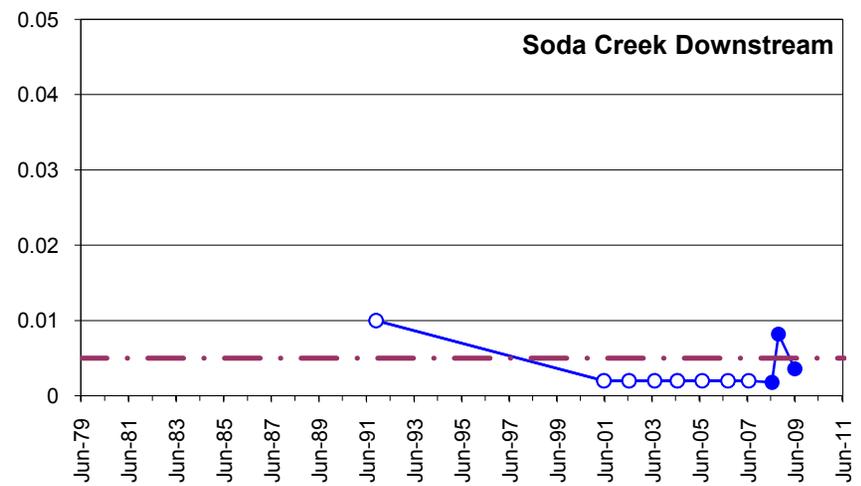
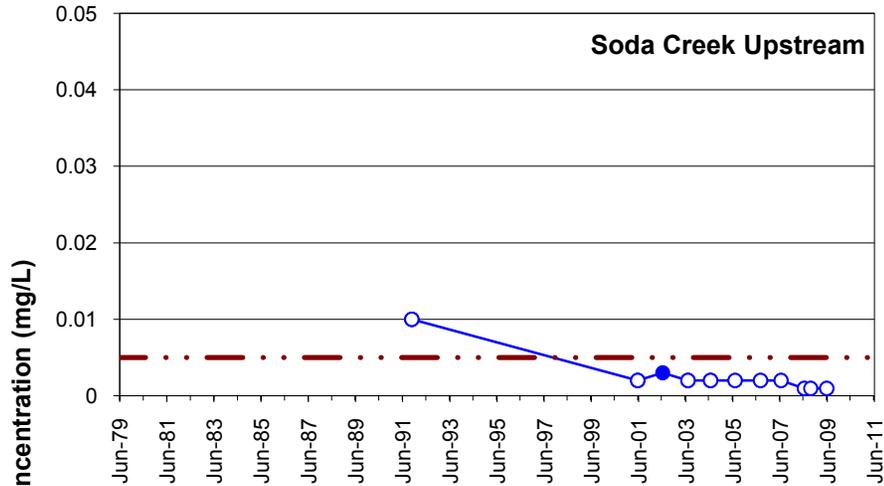
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in Harris Well and Springs South of Plant		FIGURE A-4	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - · - Cadmium Remediation Goal (0.005 mg/L) 	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED



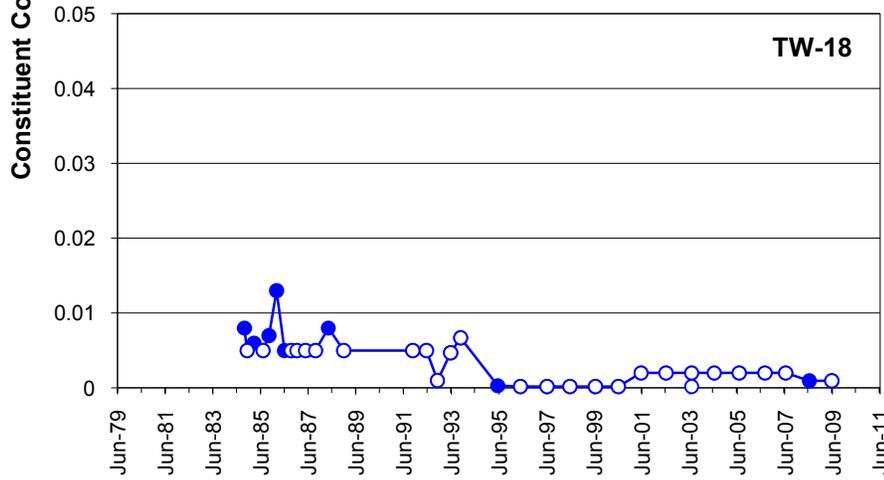
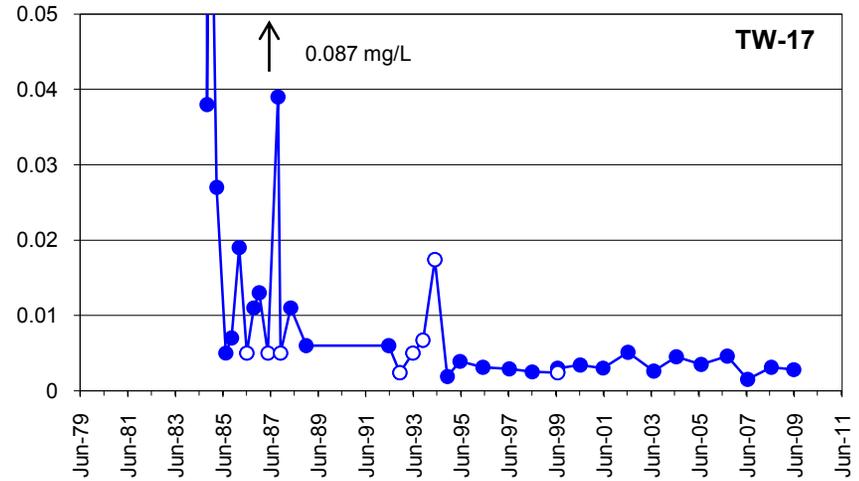
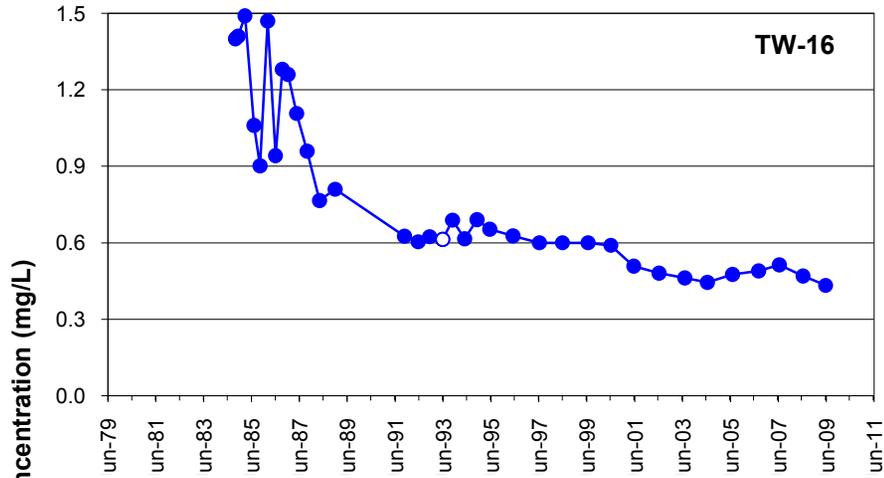
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in Soda Creek and Effluent Discharge		FIGURE A-5	
<ul style="list-style-type: none"> —●— Constituent Concentration (mg/L) ○ Non-Detects -.- Cadmium Remediation Goal (0.005 mg/L) ◆ Pond Inlet 		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



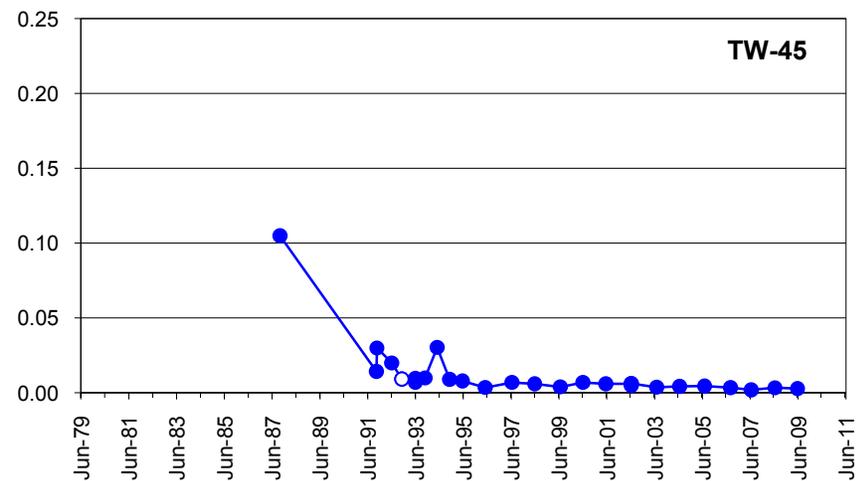
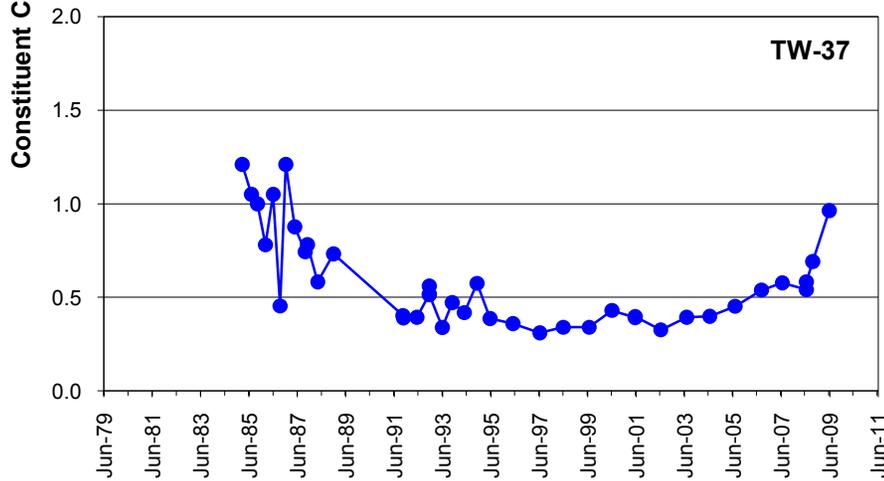
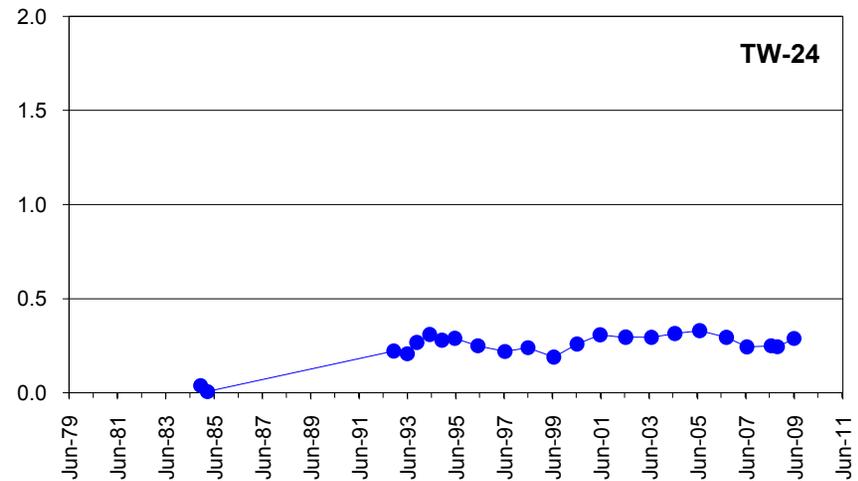
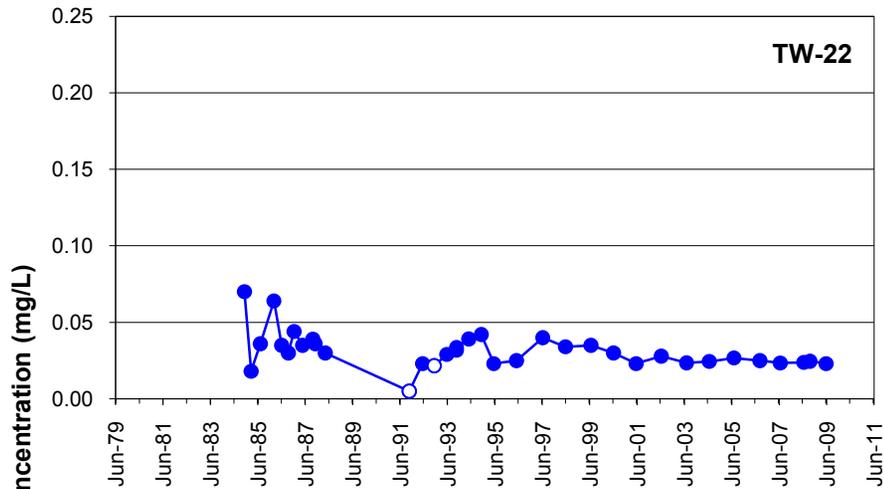
TITLE **Cadmium in NW Pond Wells**

FIGURE **A-6**

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



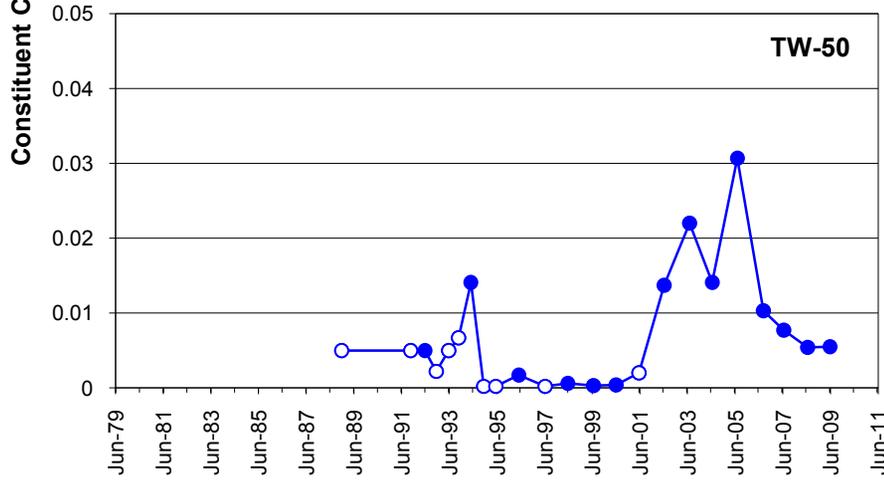
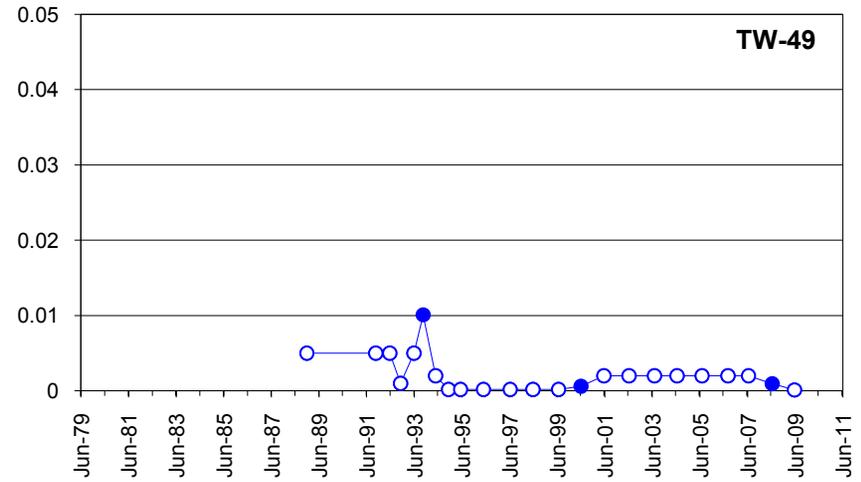
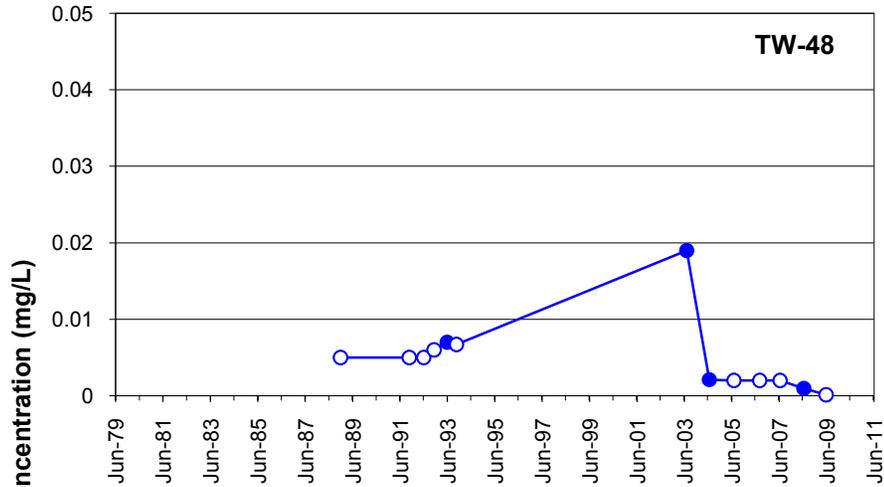
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in Old Underflow Solids Pond Area Wells		FIGURE A-7	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

FILE NAME App A Cadmium Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE

Cadmium in Underflow Solids Piles Area Wells

FIGURE A-8

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

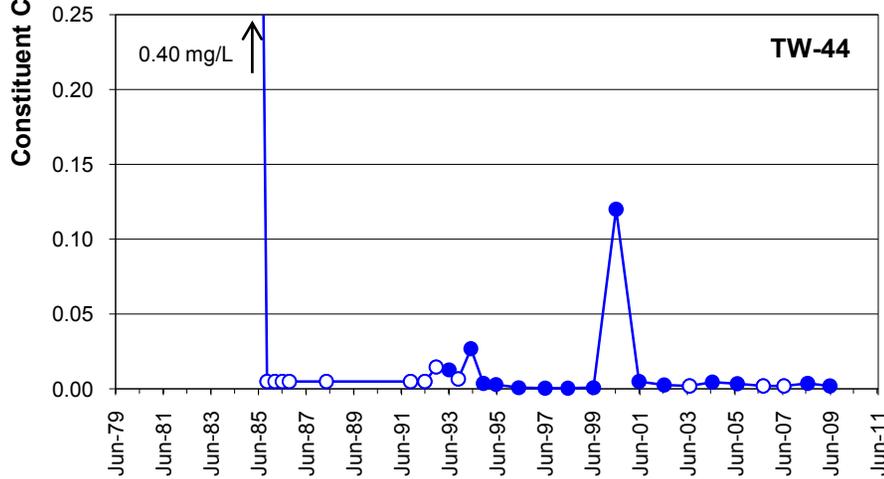
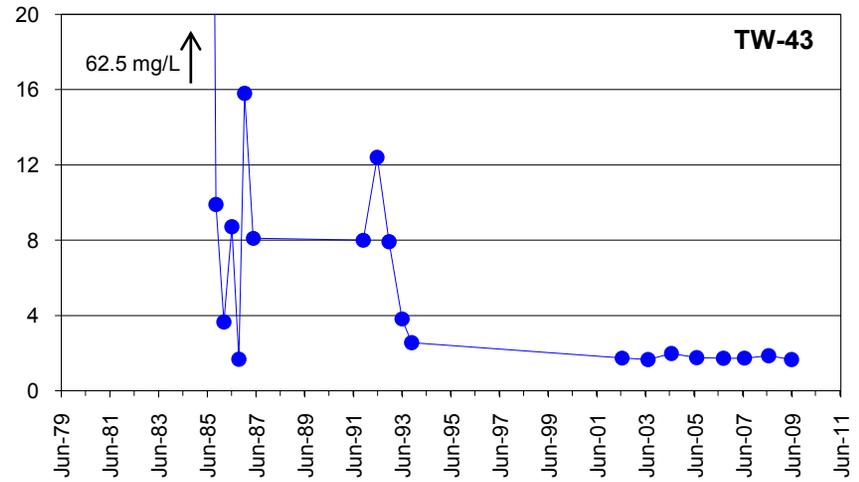
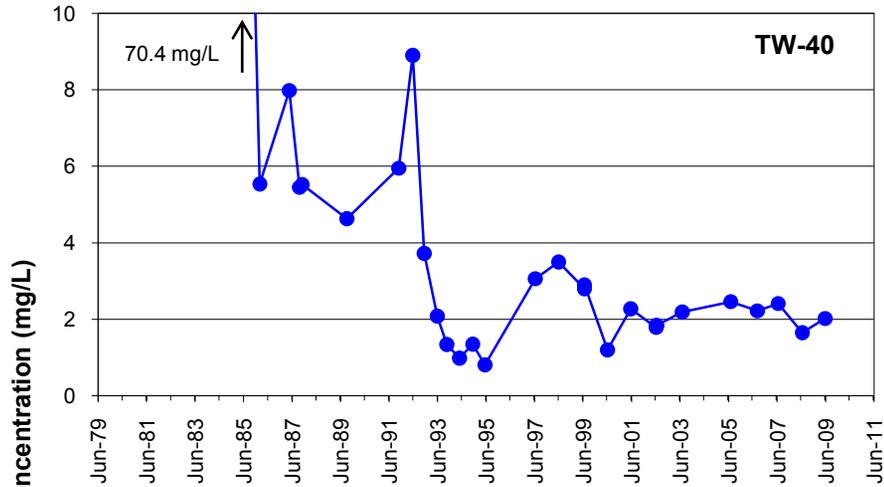
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



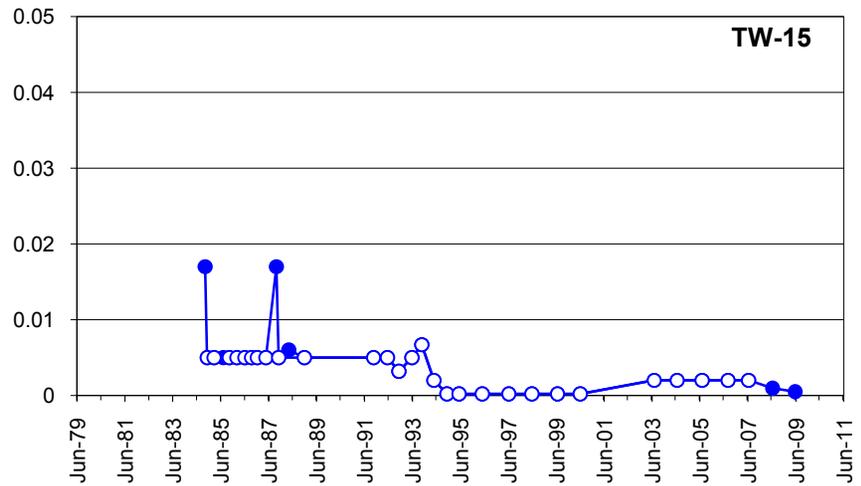
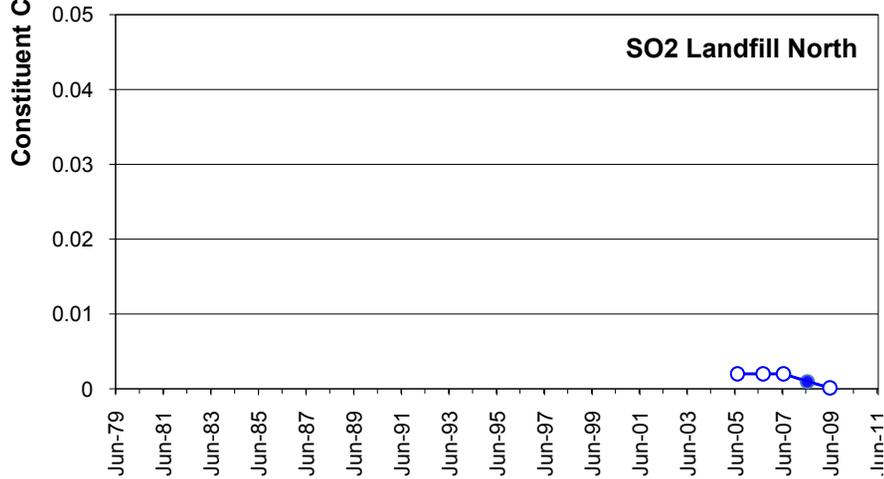
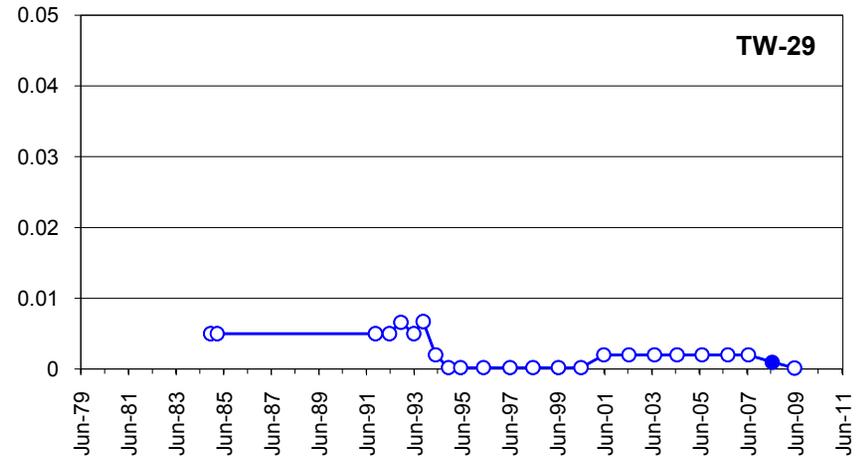
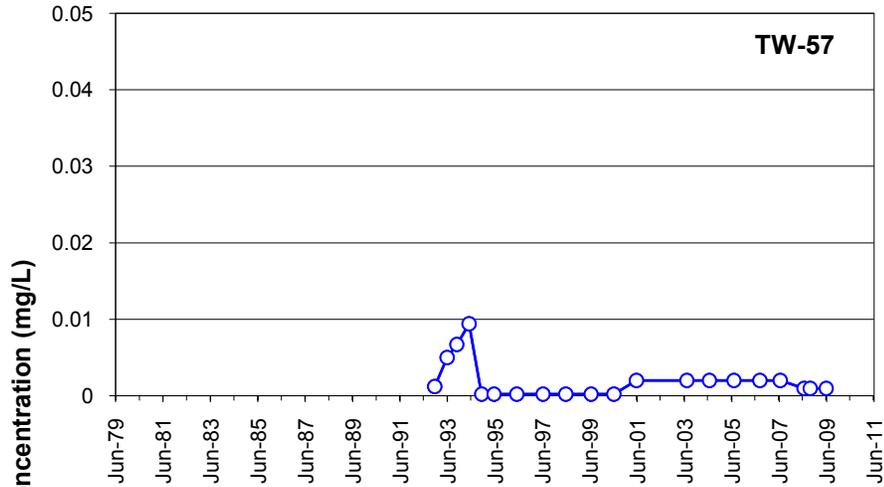
Sample Date

FILE NAME App A Cadmium Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE		Cadmium in Hydroclarifier Area Wells		FIGURE A-9	
	CLIENT	Monsanto Company		DRAWN	DH
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED



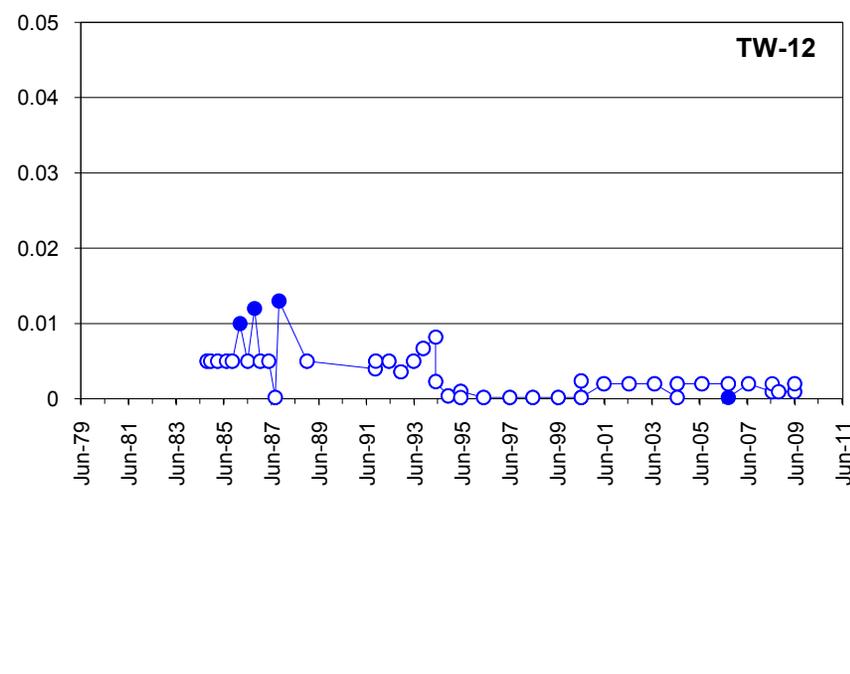
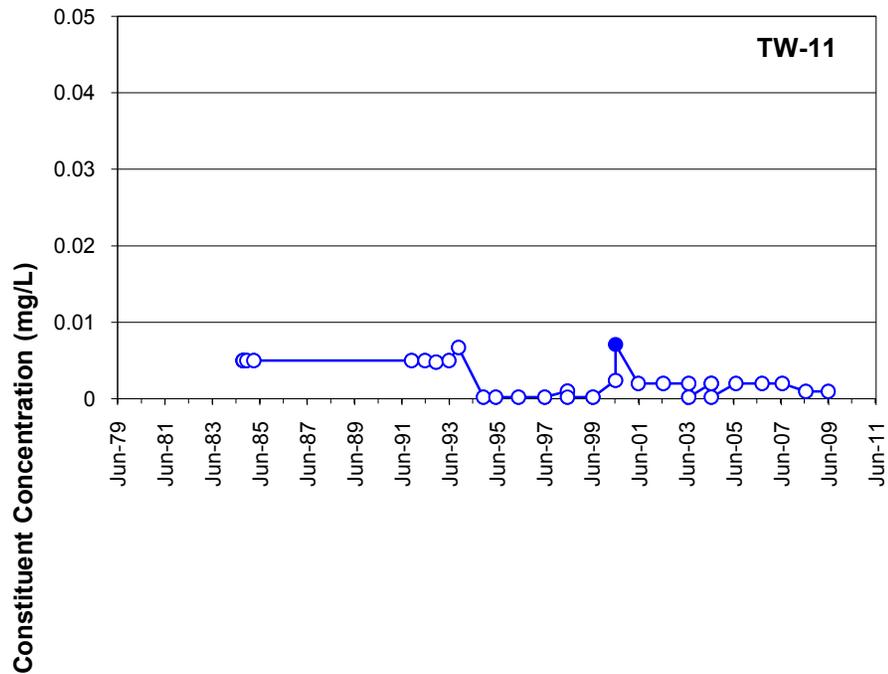
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in Background Area Wells		FIGURE A-10	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



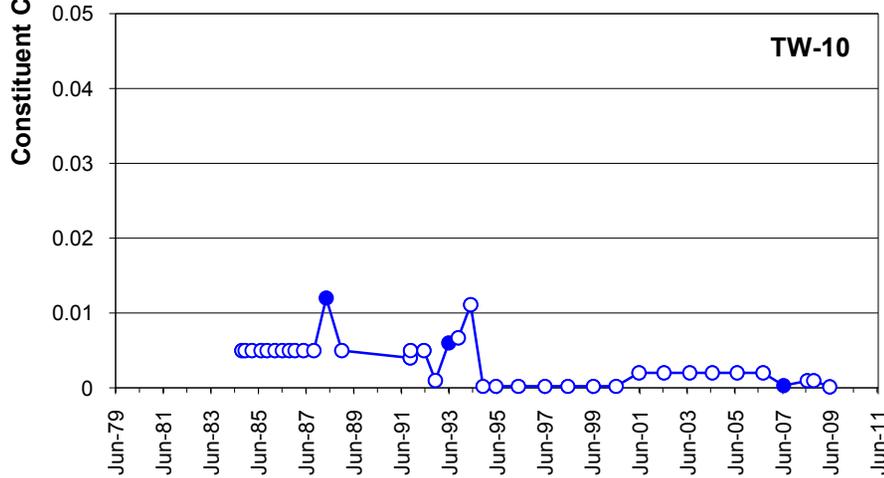
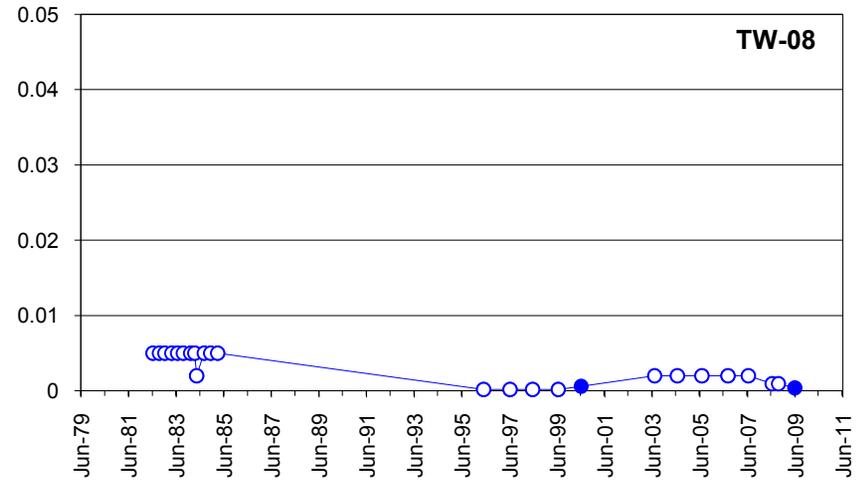
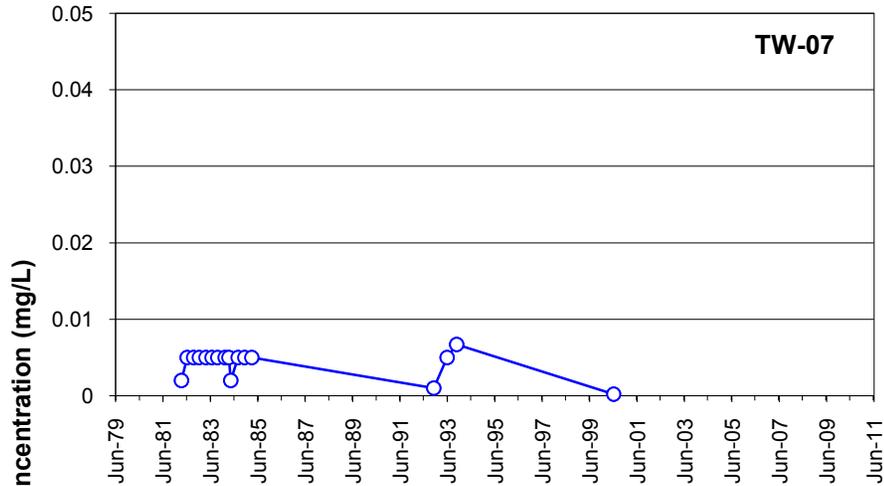
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in Southeast Corner Wells		FIGURE A-11	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE

Cadmium in Southwest Wells

FIGURE A-12

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

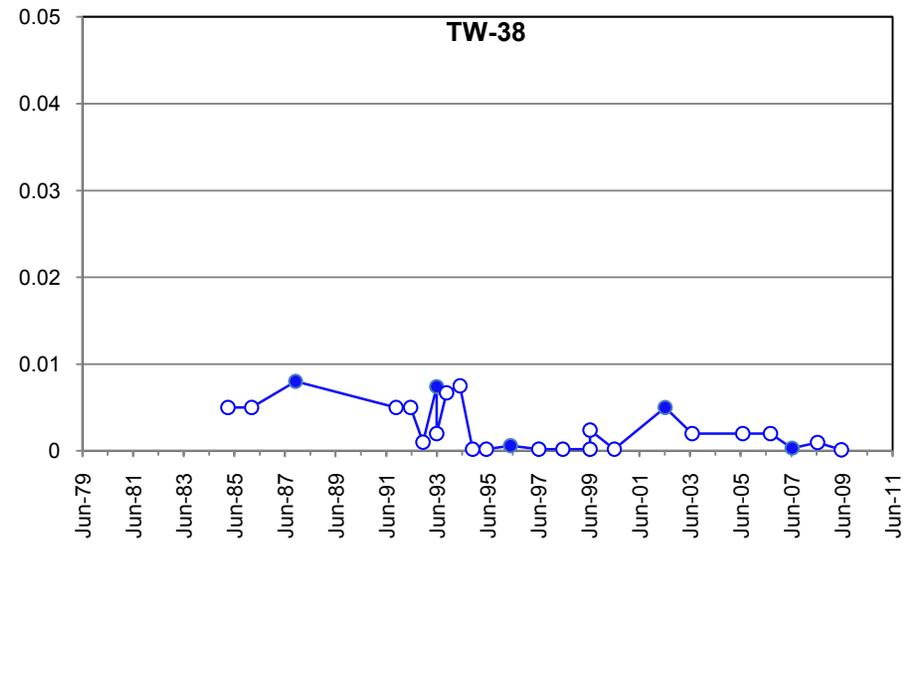
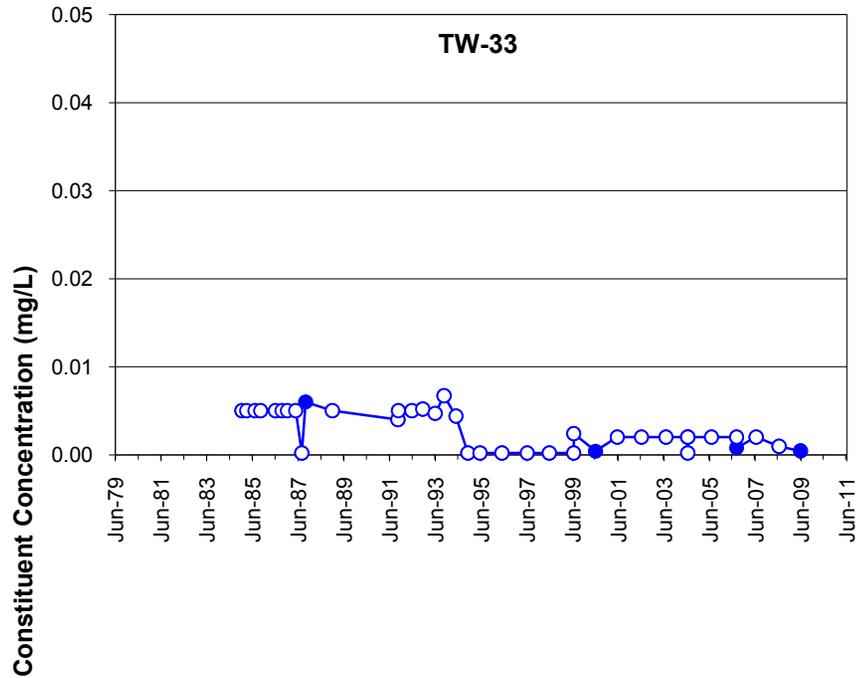
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



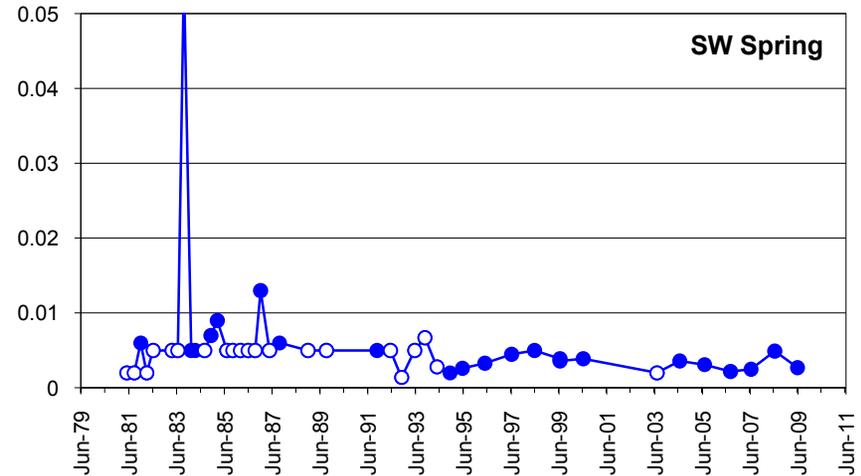
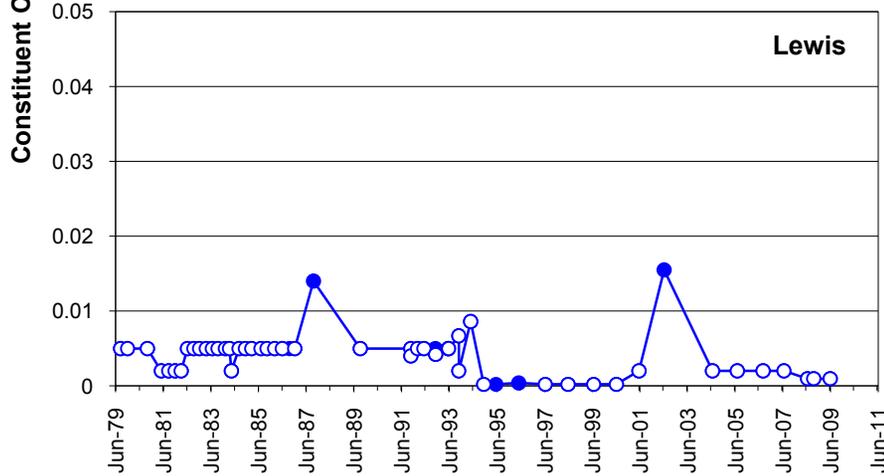
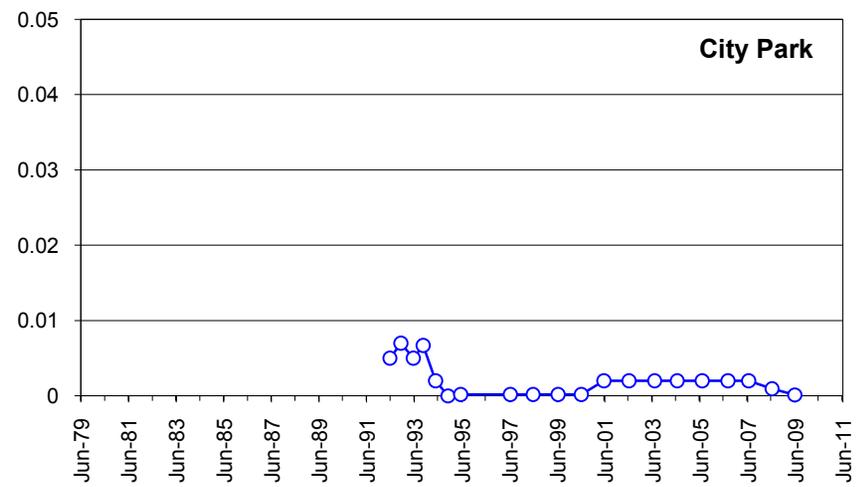
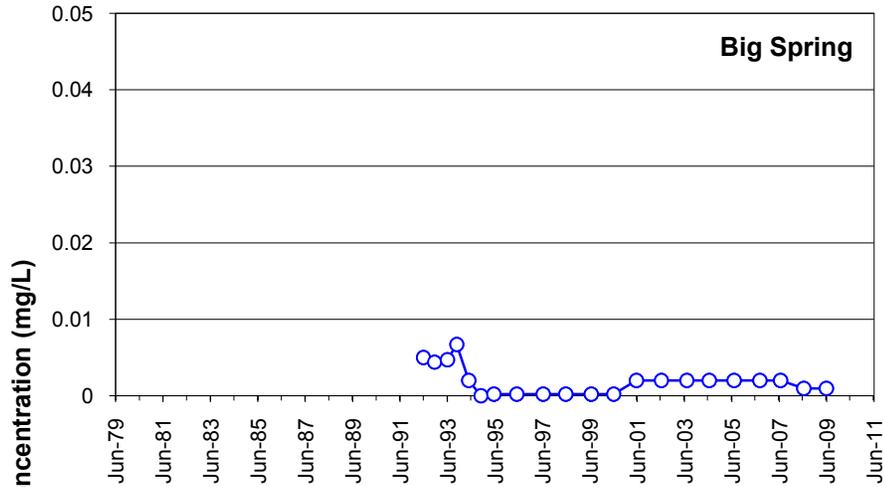
Sample Date

FILE NAME App A Cadmium Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE Cadmium in East Area Wells		FIGURE A-13	
■ Constituent Concentration (mg/L) ○ Non-Detects		CLIENT	Monsanto Company
		PROJECT	Monsanto Groundwater Monitoring
		PROJECT NO.	913-1101.605A
		DATE	3-Sep-09
		DRAWN	FV
		CHECKED	MPK
		REVIEWED	DB



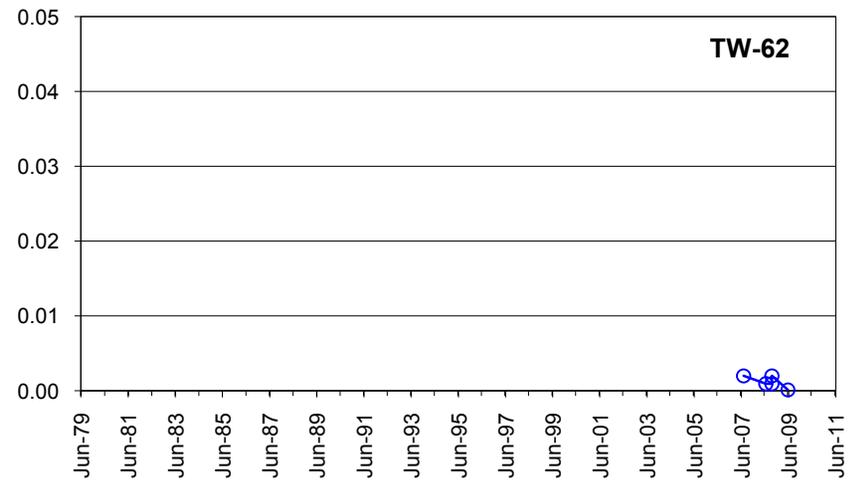
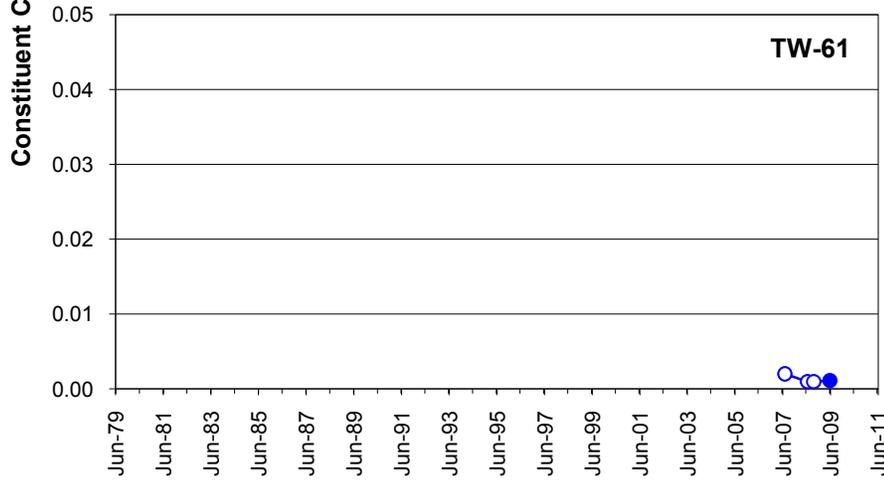
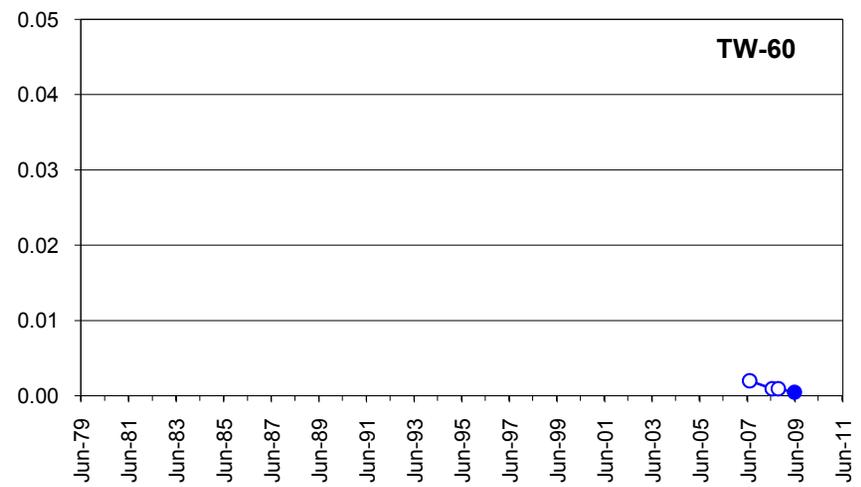
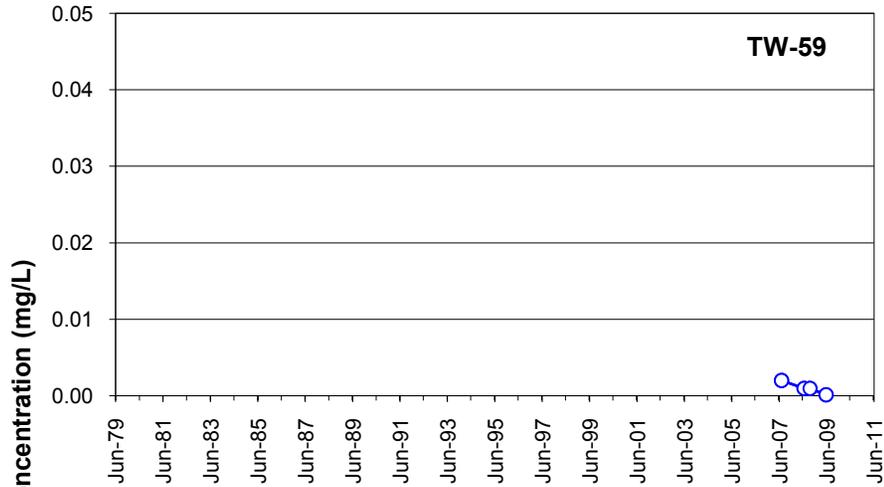
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in Off-Site Wells and Springs		FIGURE A-14	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

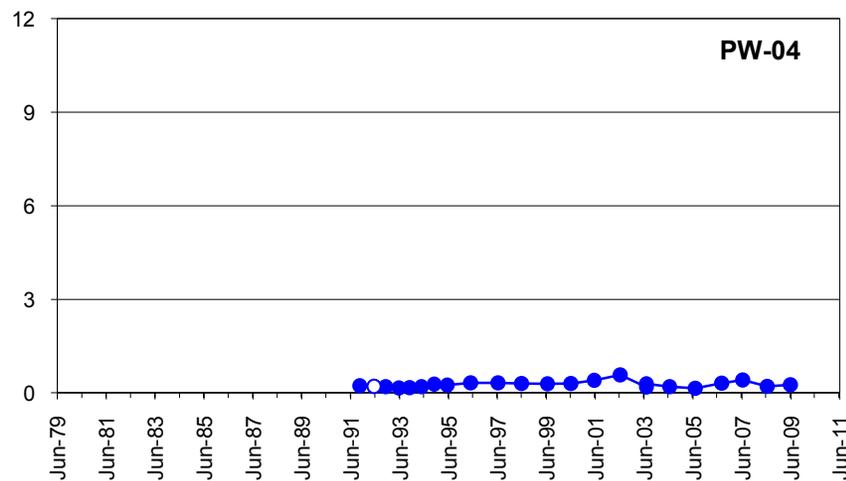
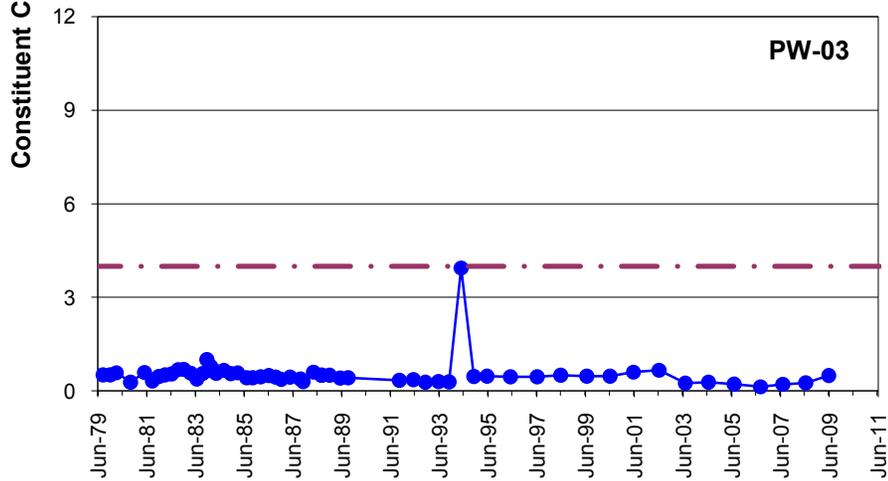
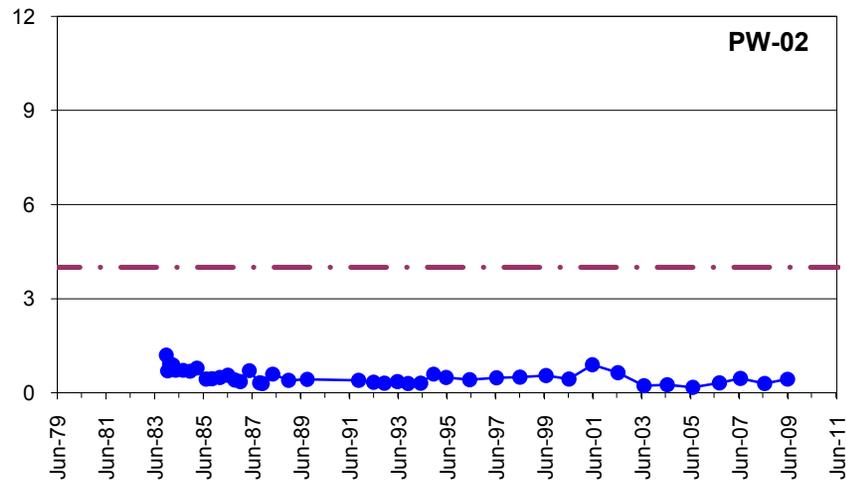
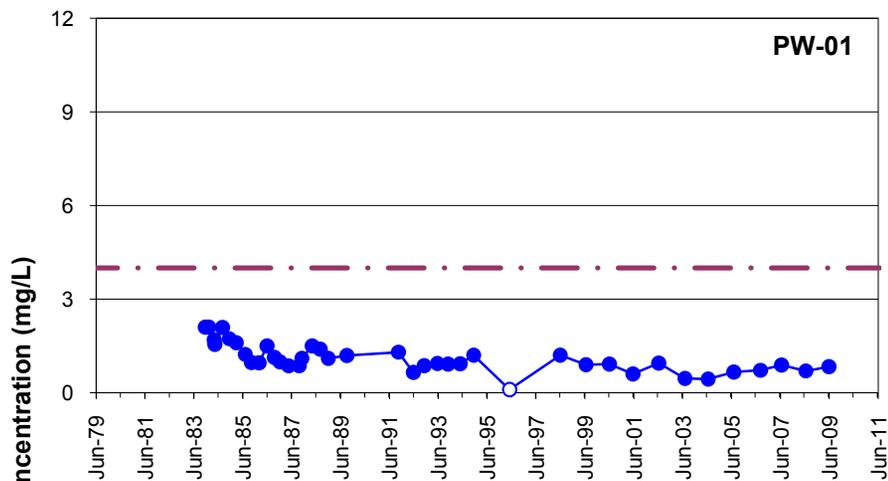
Remediation goals shown for point of compliance locations only

FILE NAME App A Cadmium Charts 2009.xls



TITLE		Cadmium in 2007 Monitoring Wells		FIGURE A-15	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED

APPENDIX B
TIME-HISTORY GRAPHS FOR FLUORIDE



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

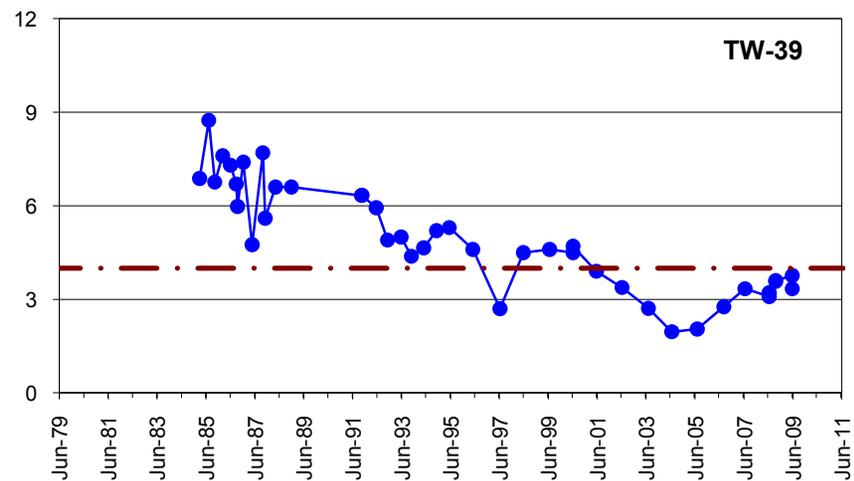
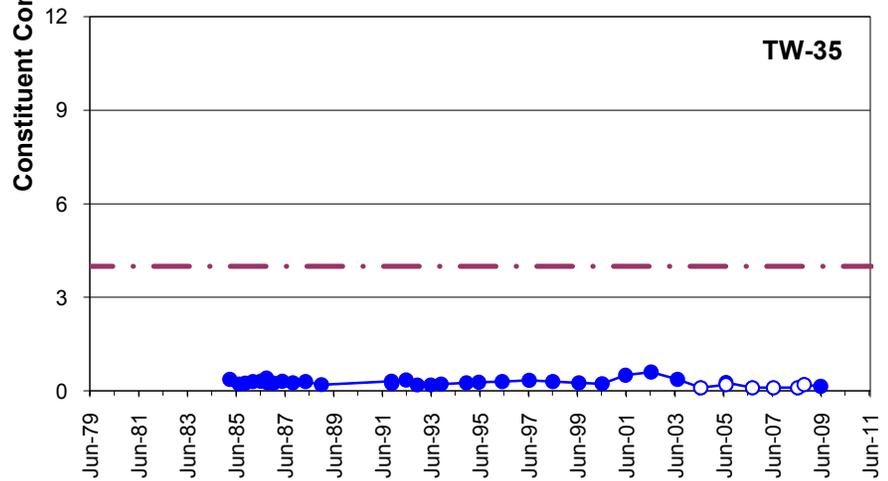
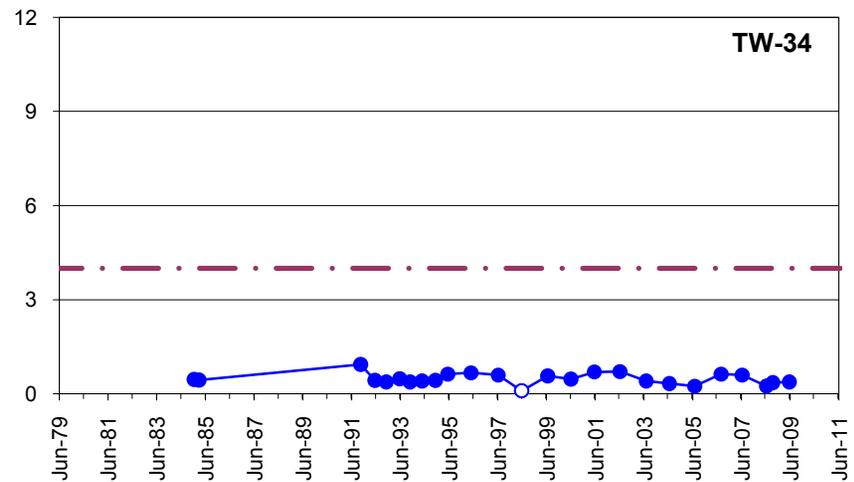
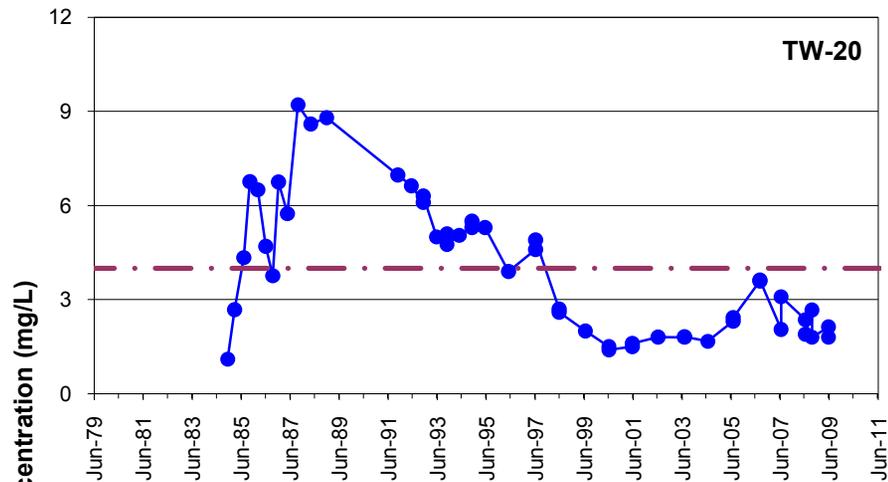
Fluoride in Production Wells

FIGURE B-1

- Constituent Concentration (mg/L)
- Non-Detects
- Fluoride Remediation Goal (4 mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



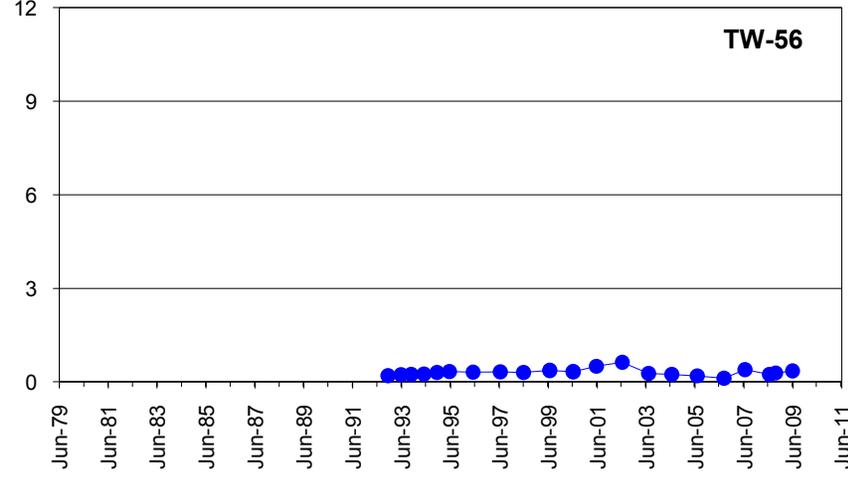
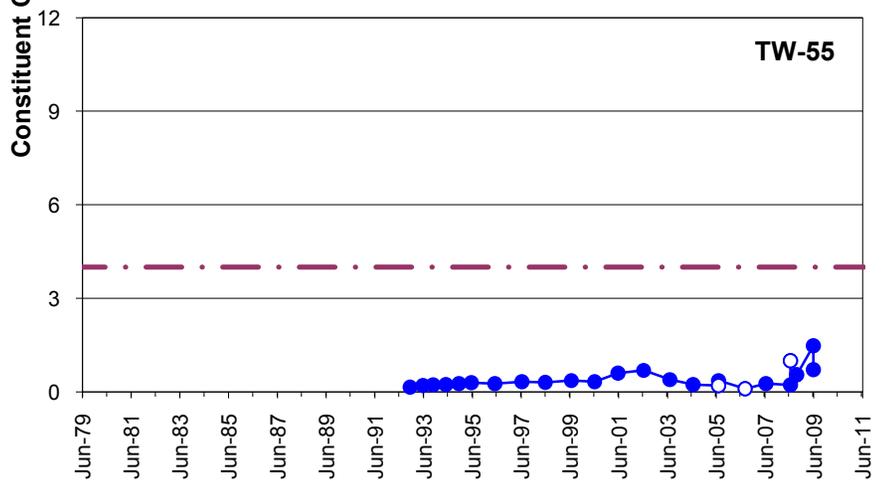
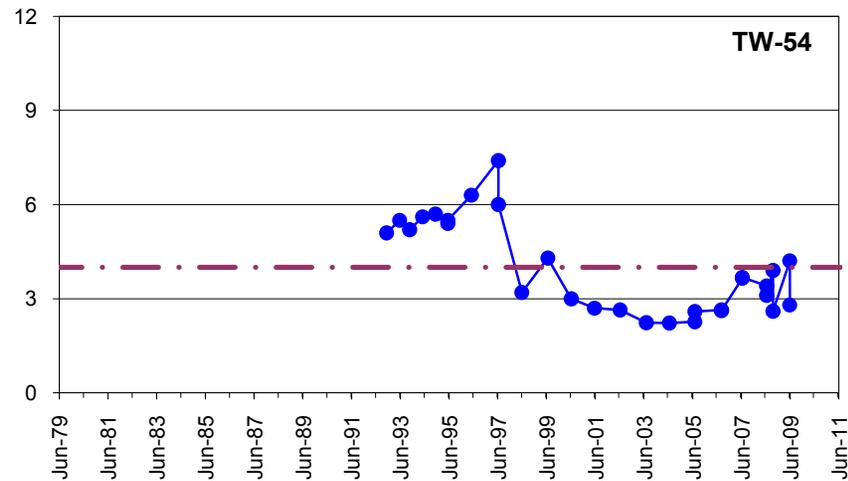
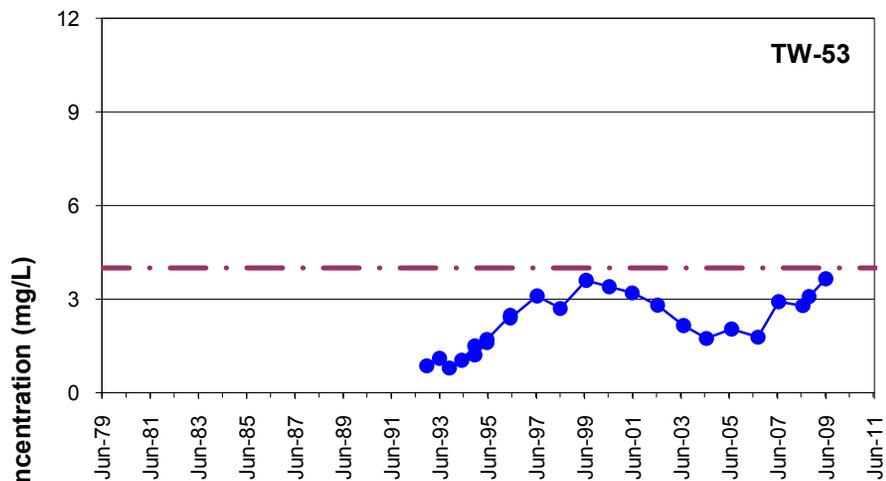
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE		Fluoride in South Fenceline Wells		FIGURE B-2	
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		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in Southern Boundary Wells

FIGURE B-3

- Constituent Concentration (mg/L)
- Non-Detects
- Fluoride Remediation Goal (4 mg/L)

CLIENT Monsanto Company

DRAWN FV

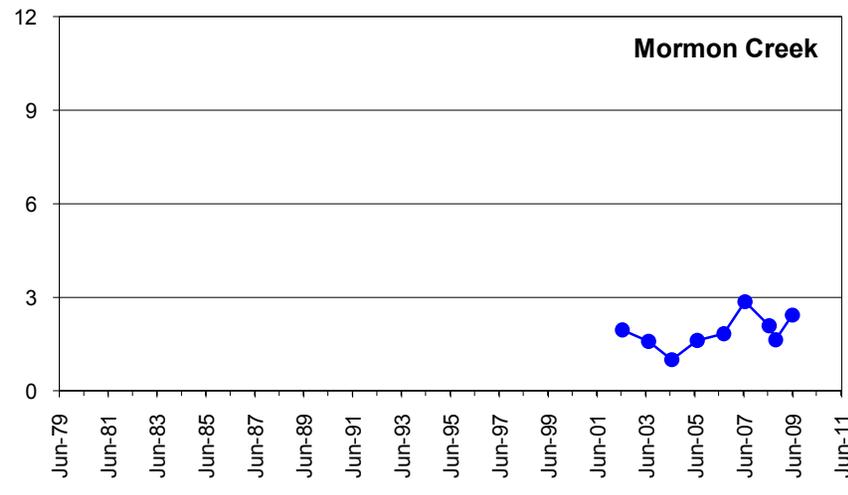
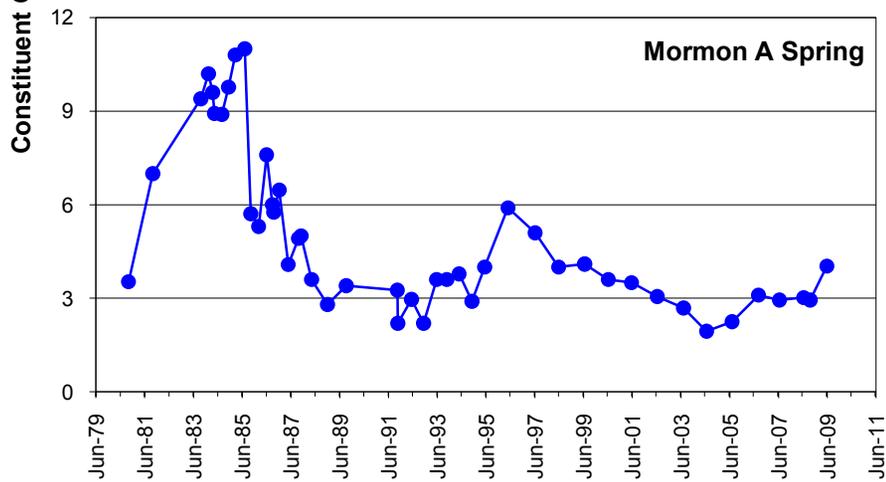
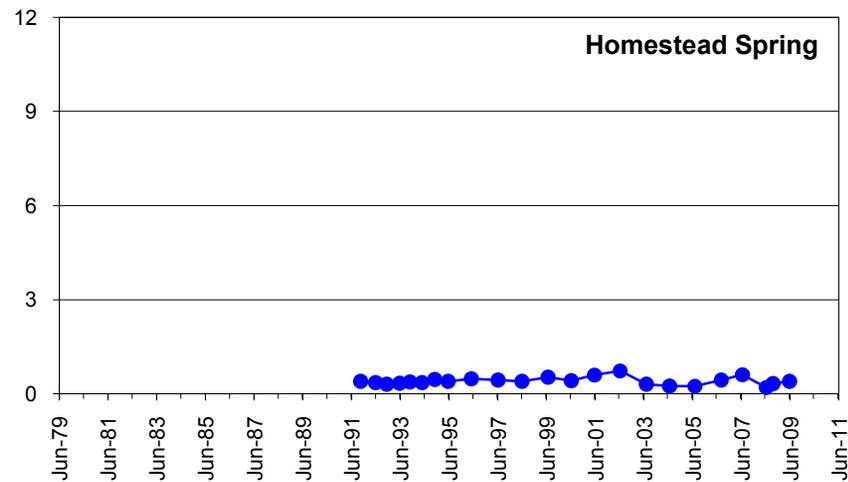
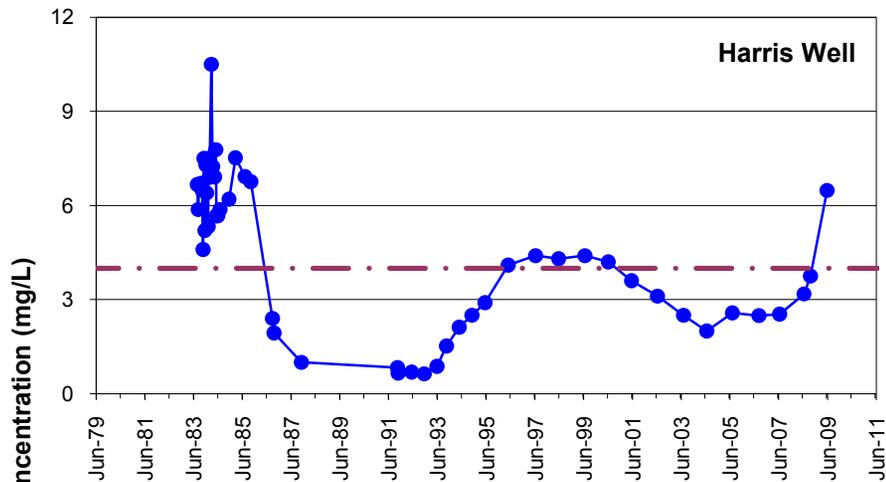
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

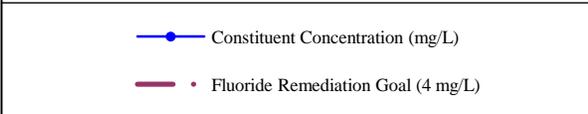
Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



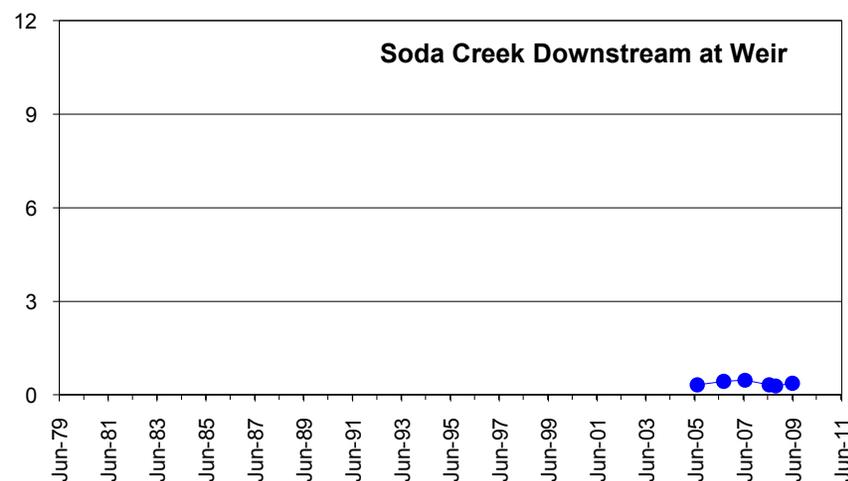
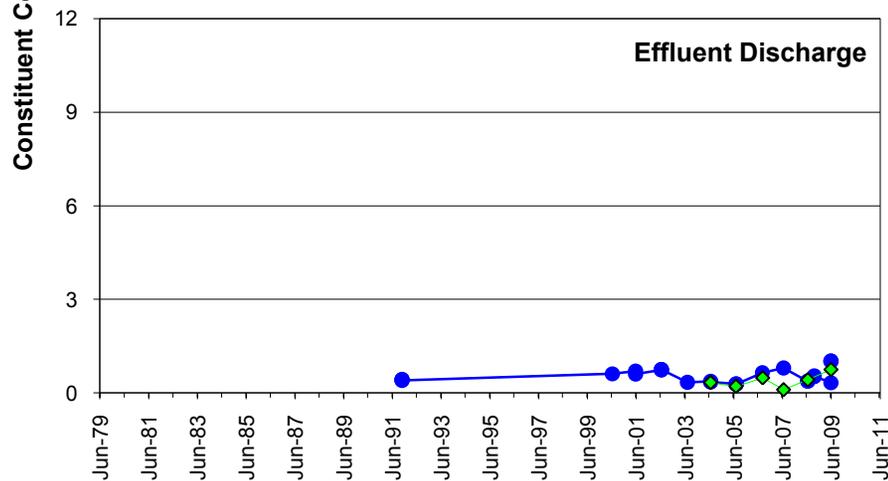
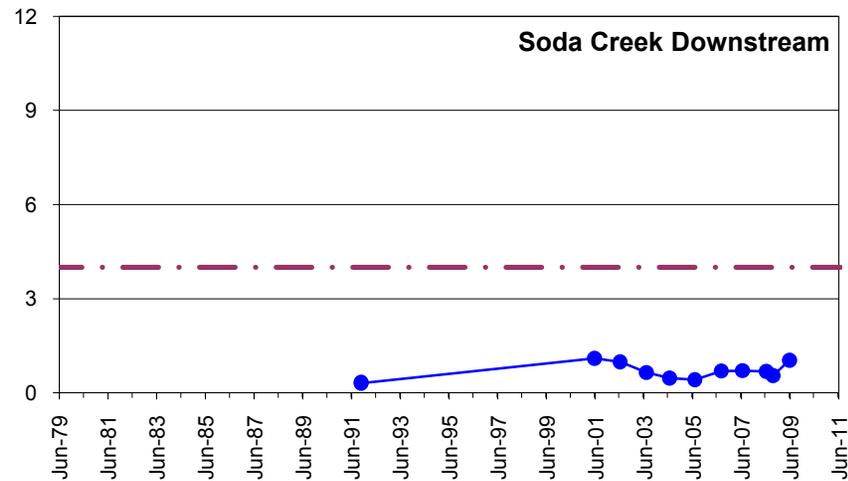
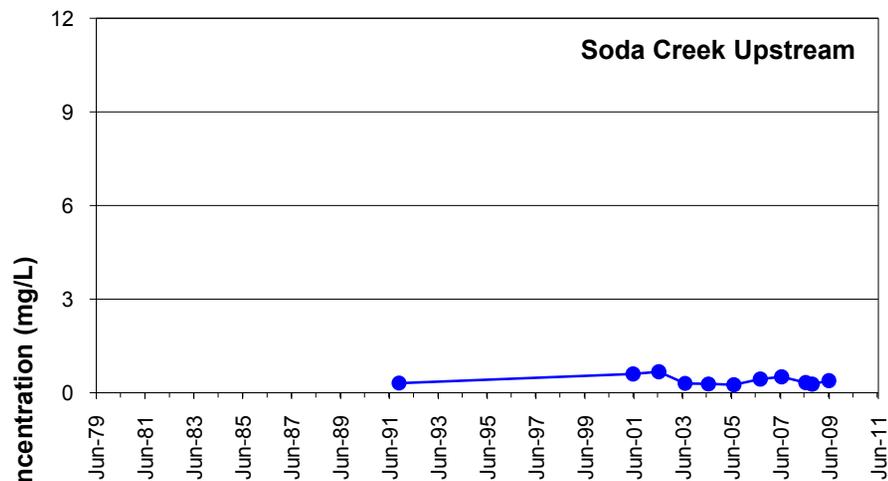
TITLE **Fluoride in Harris Well and Springs South of Plant**

FIGURE B-4



CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



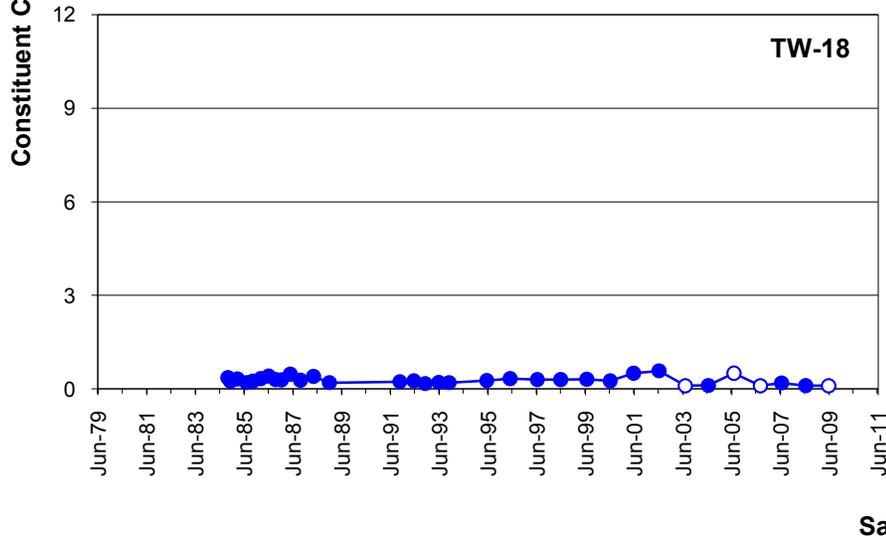
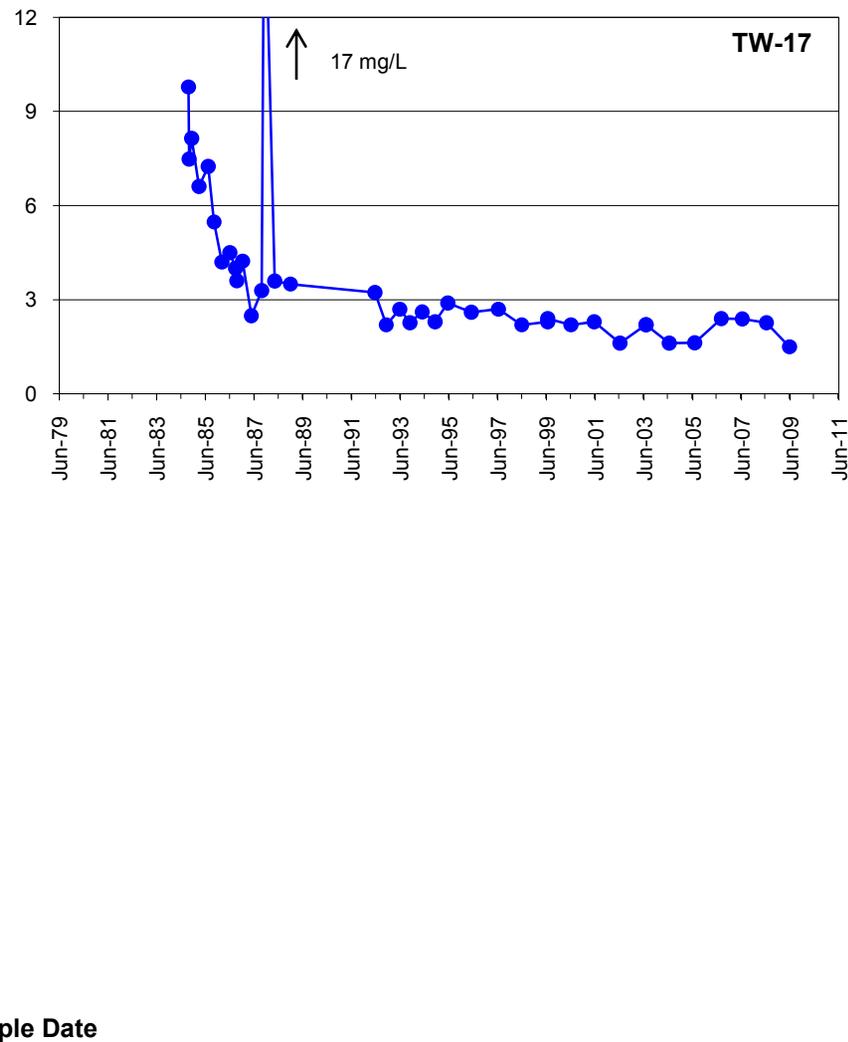
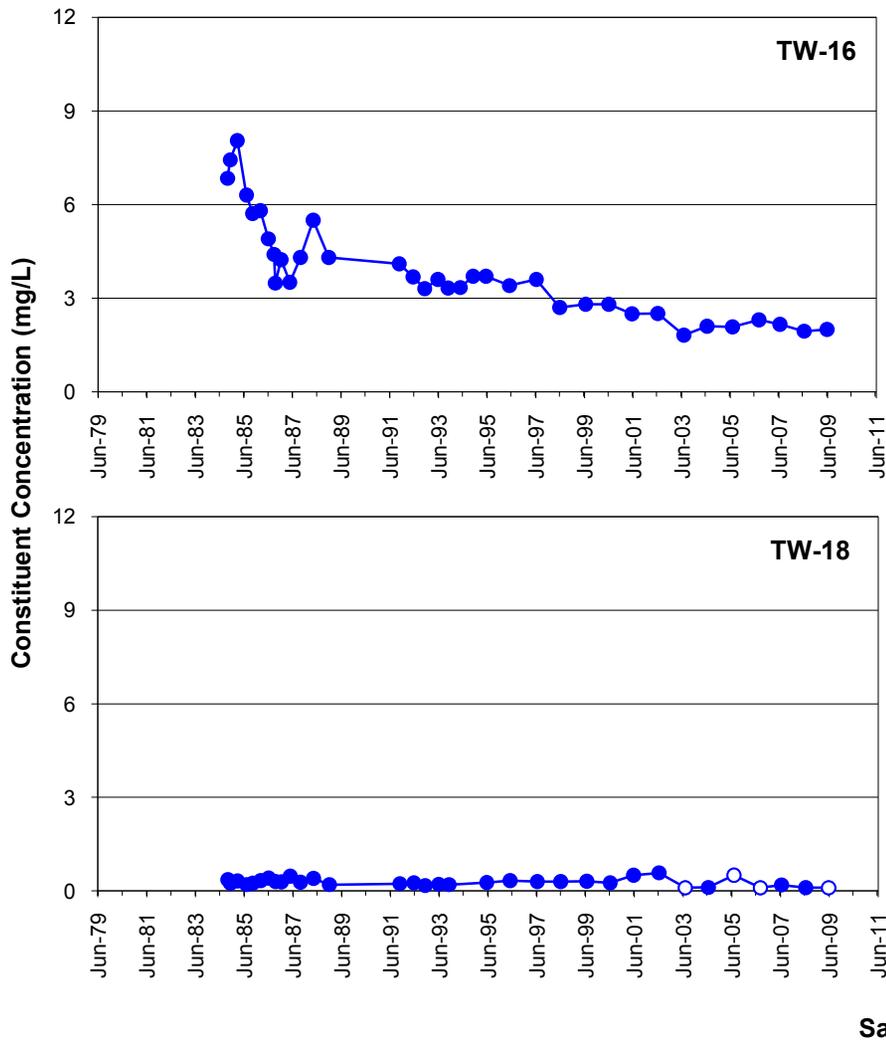
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE		Fluoride in Soda Creek and Effluent Discharge		FIGURE B-5			
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) - · - Fluoride Remediation Goal (4 mg/L) ◆ Pond Inlet 		CLIENT	Monsanto Company		DRAWN	FV	
		PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK	
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED	DB



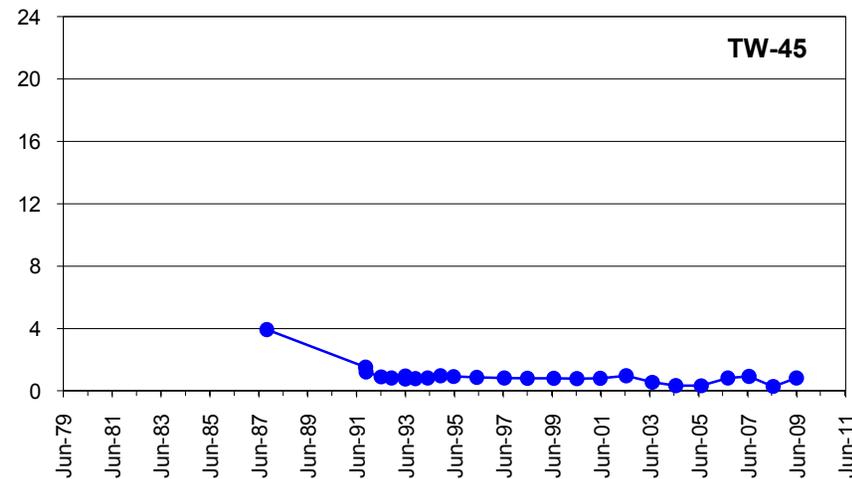
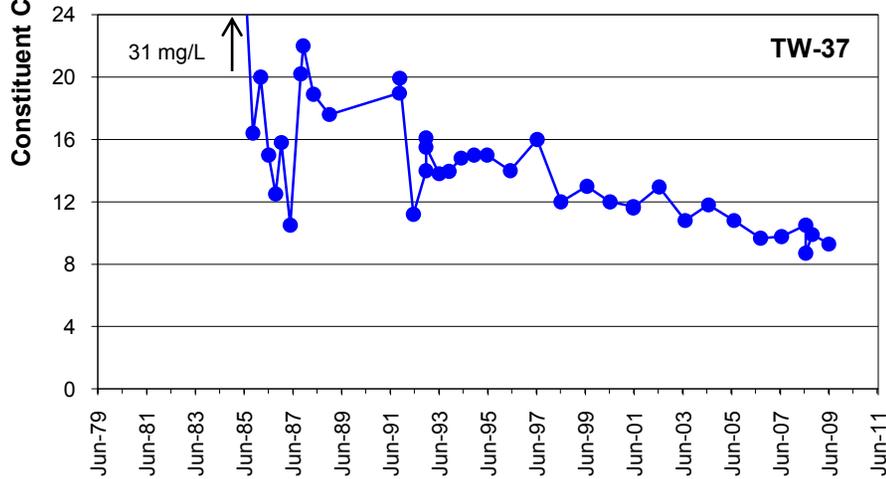
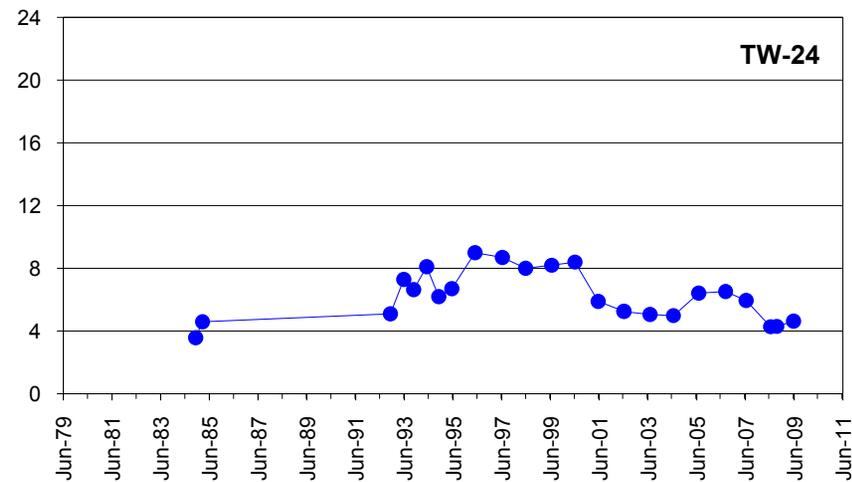
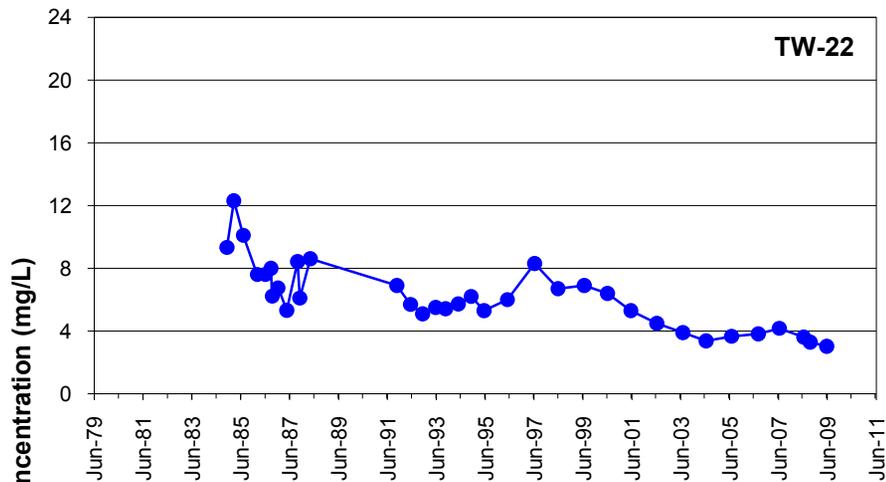
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE		Fluoride in NW Pond Wells		FIGURE B-6	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in Old Underflow Solids Pond Area Wells

FIGURE B-7

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

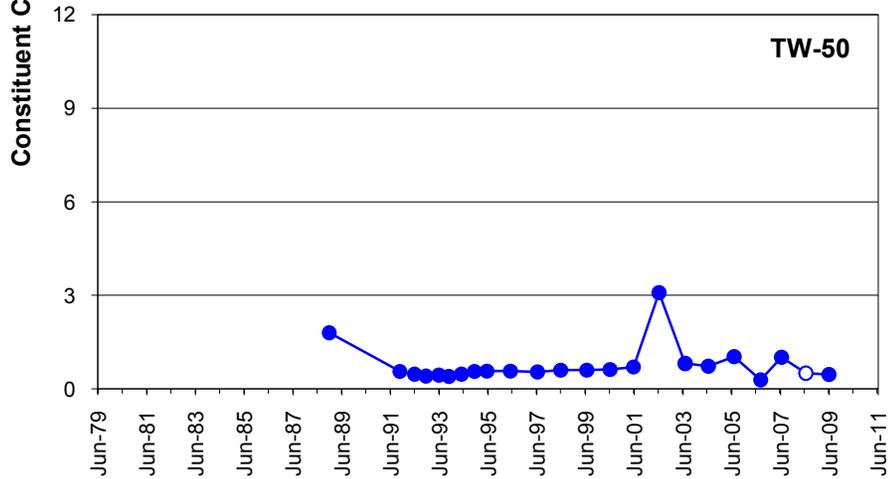
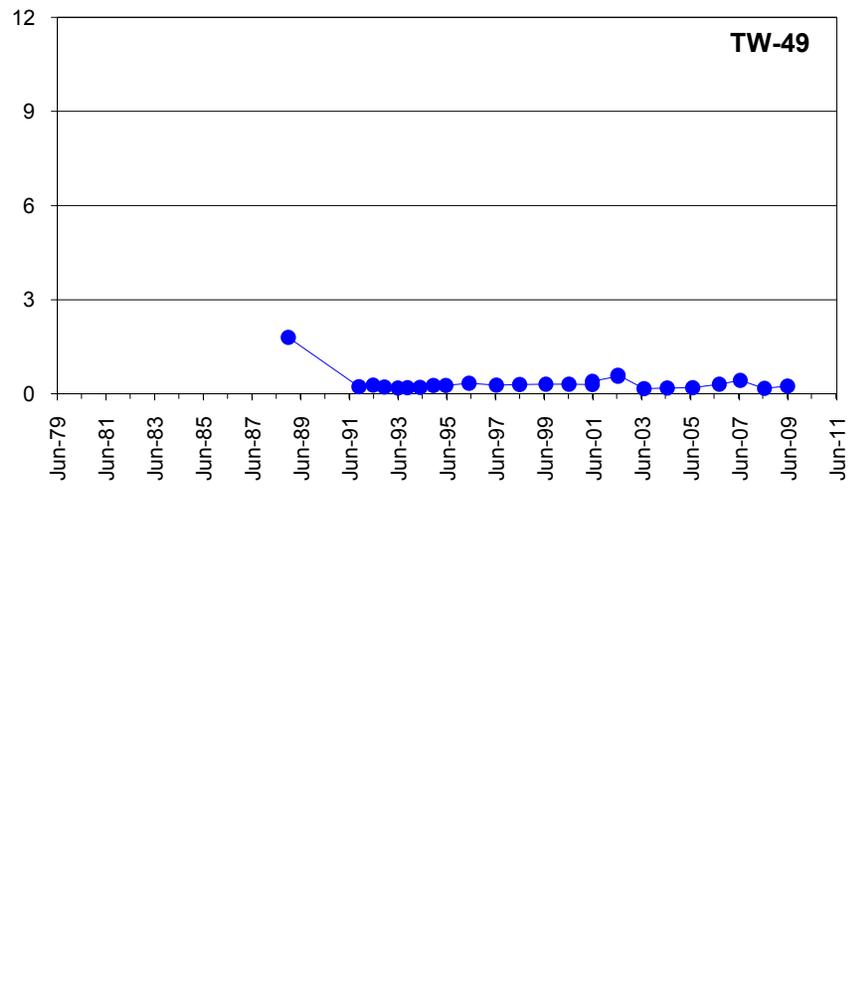
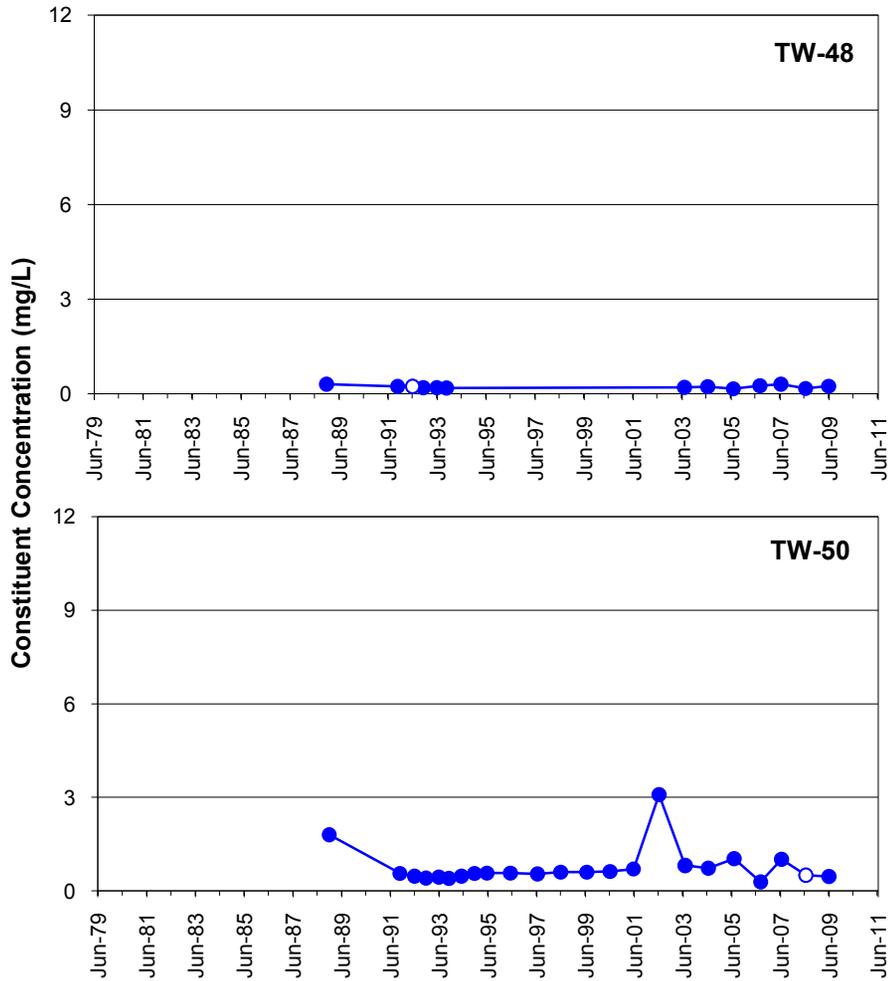
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in Underflow Solids Piles Area Wells

FIGURE B-8

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

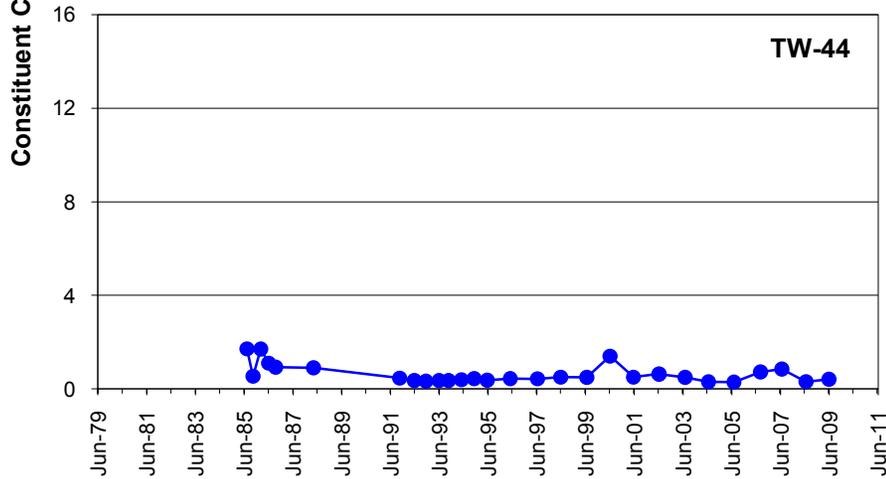
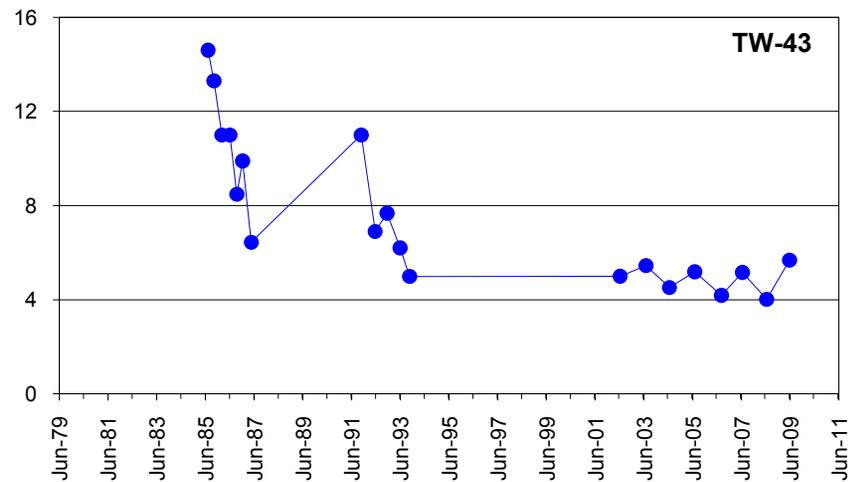
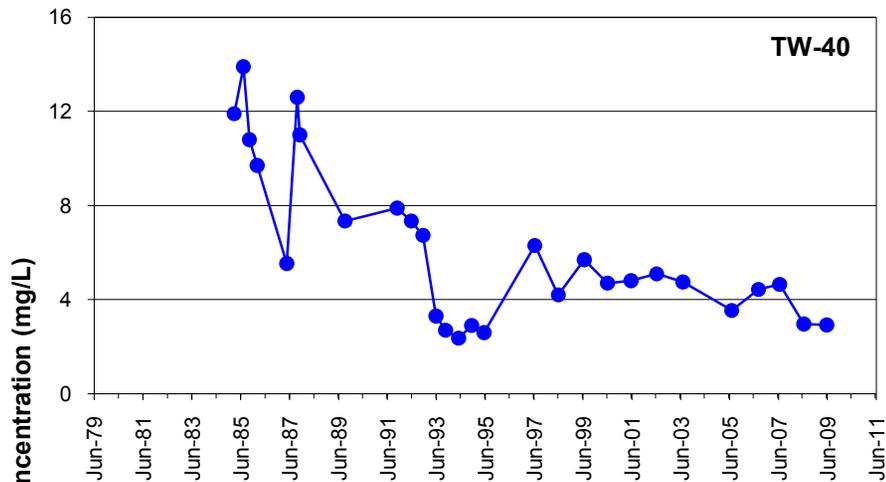
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in Hydroclarifier Area Wells

FIGURE B-9

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

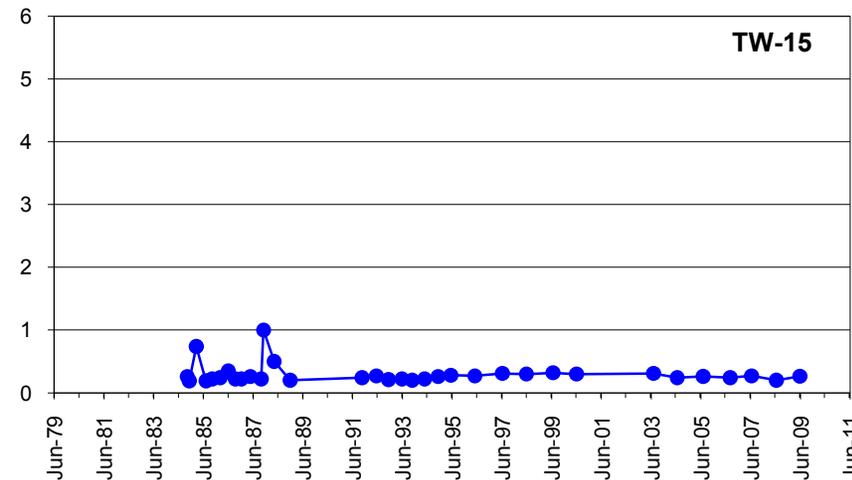
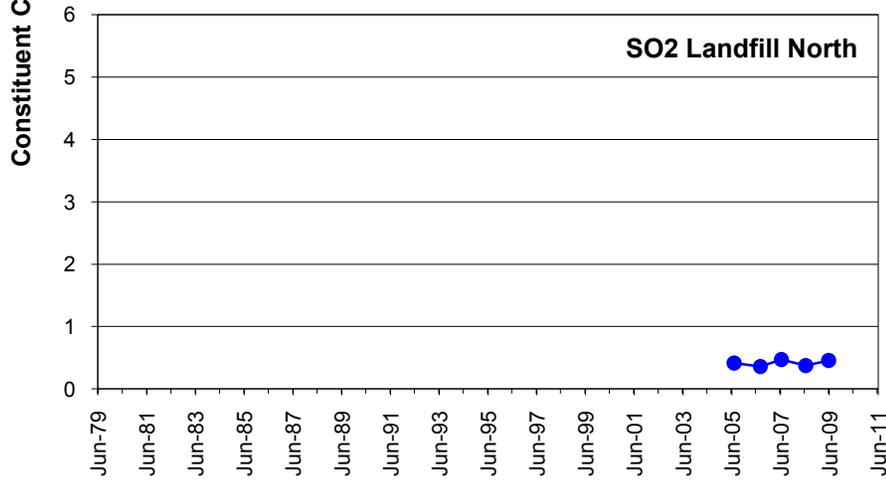
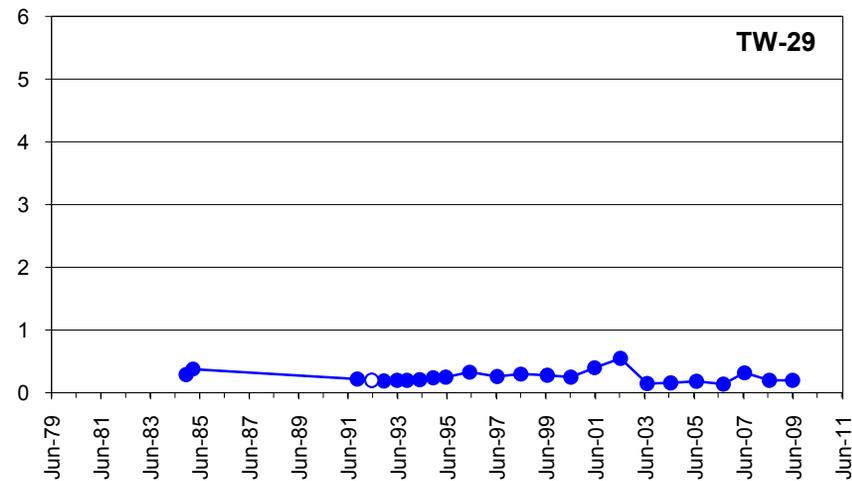
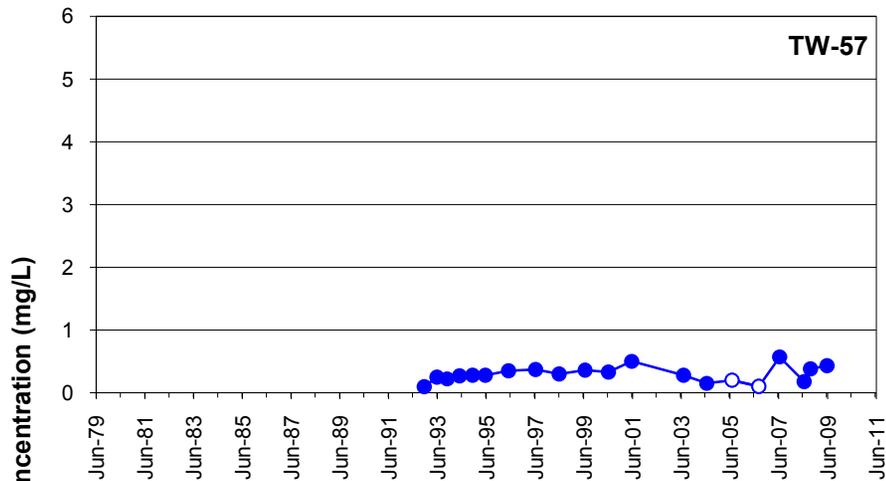
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in Background Area Wells

FIGURE B-10

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

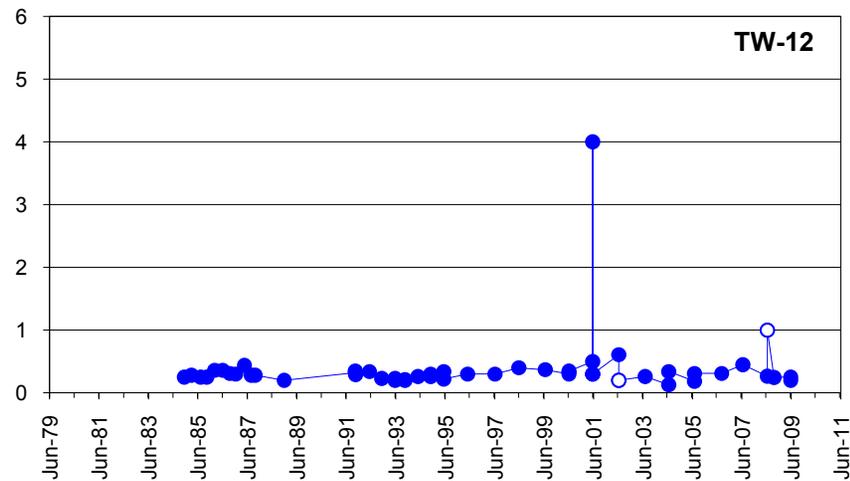
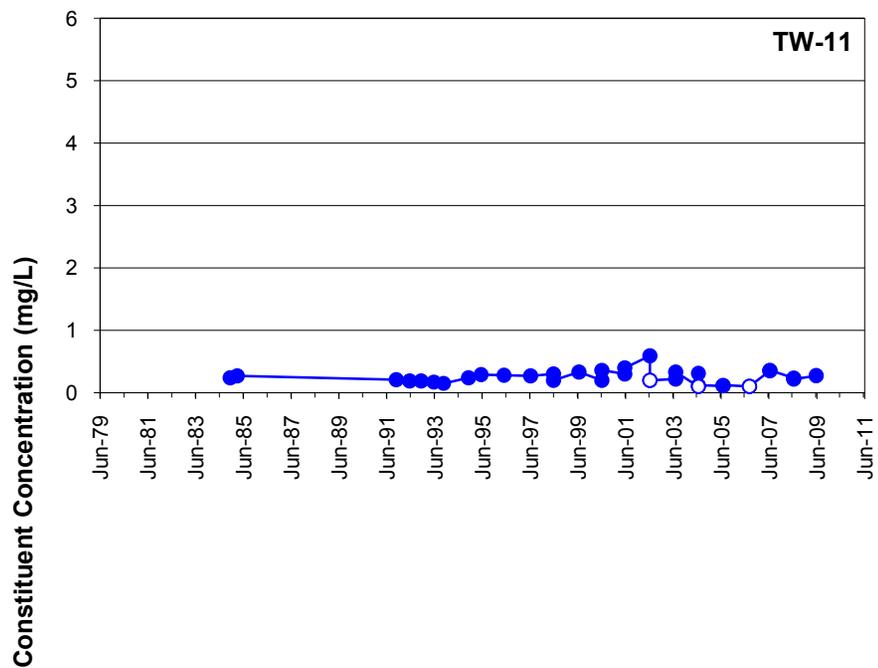
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in Southeast Corner Wells

FIGURE B-11

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

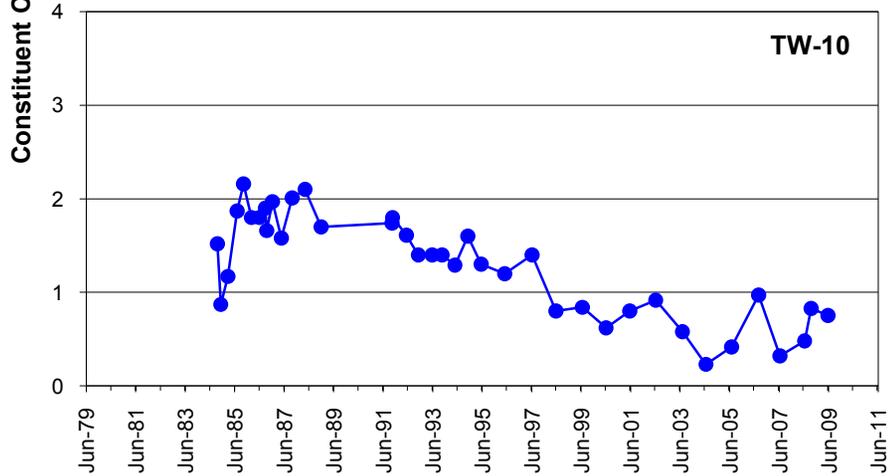
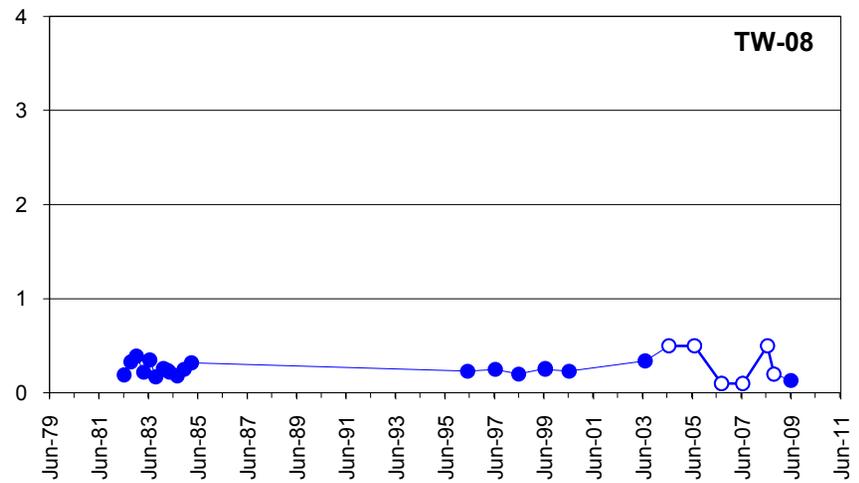
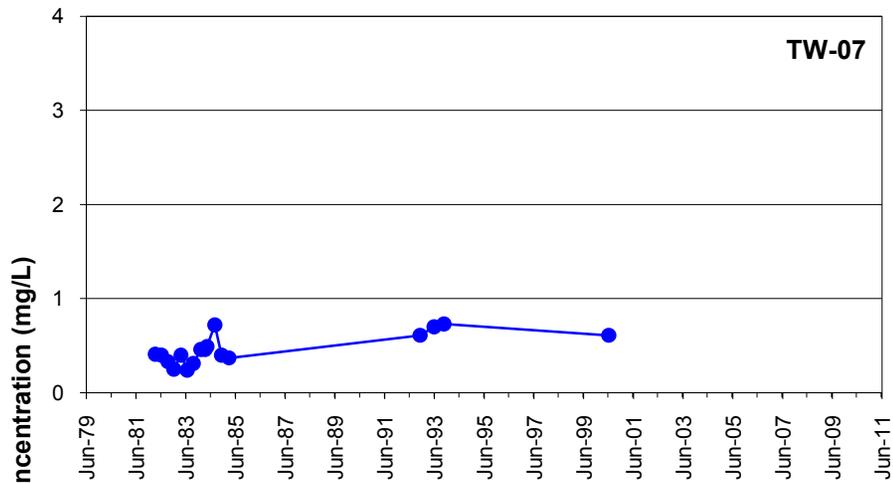
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



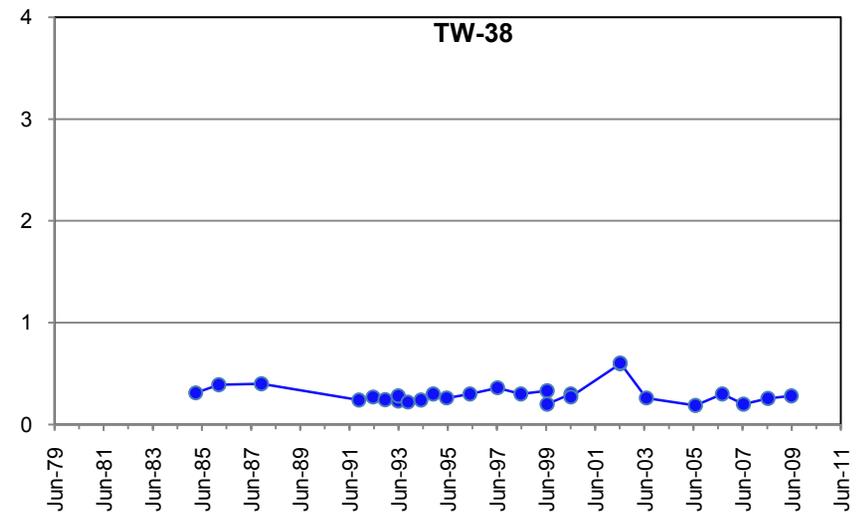
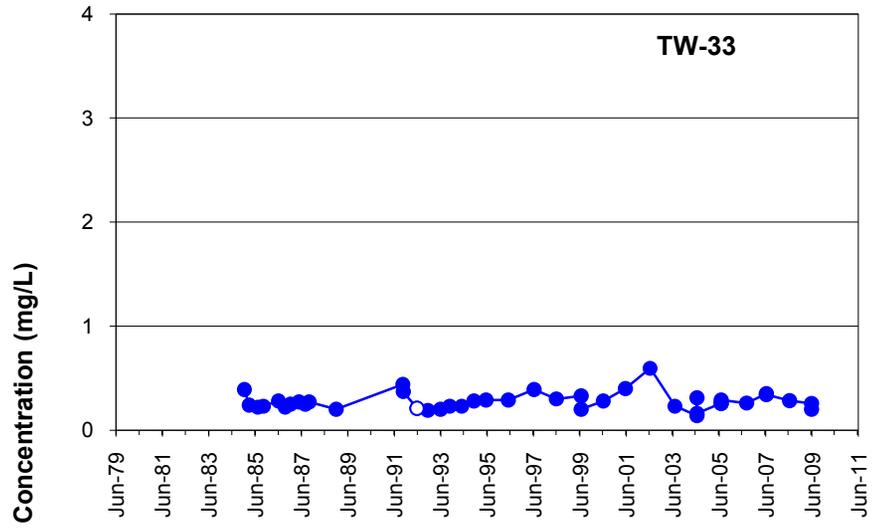
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE		Fluoride in Southwest Corner Wells		FIGURE B-12	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



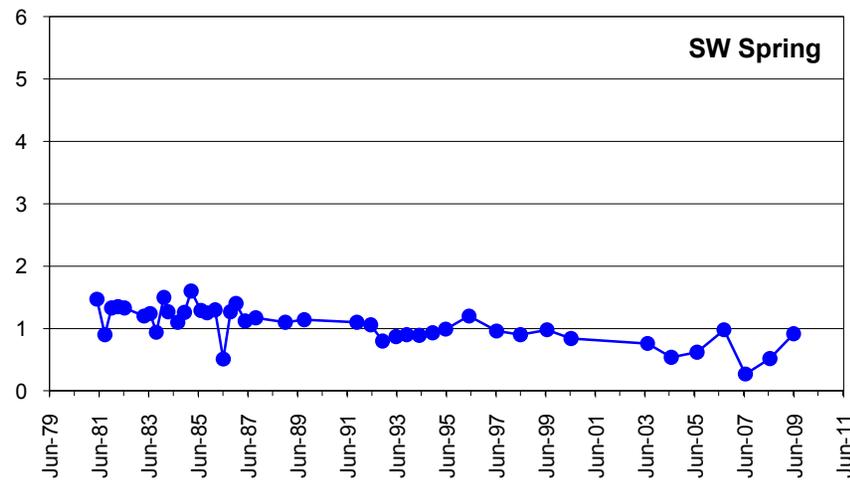
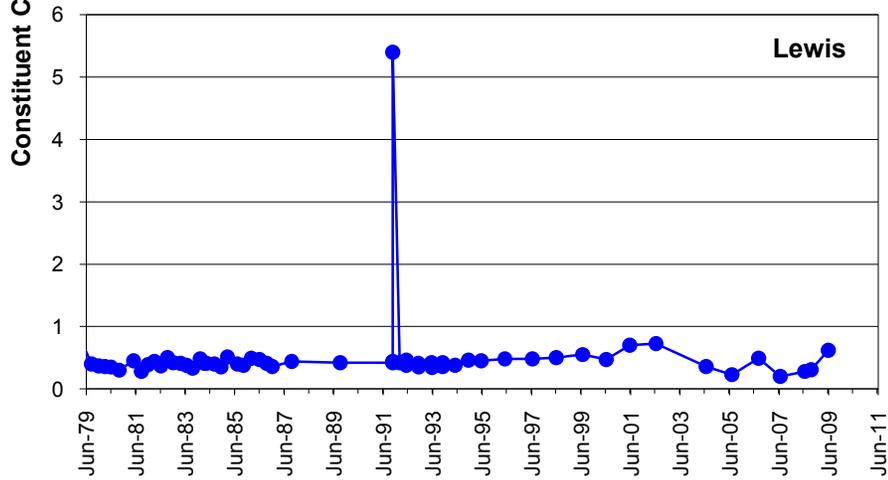
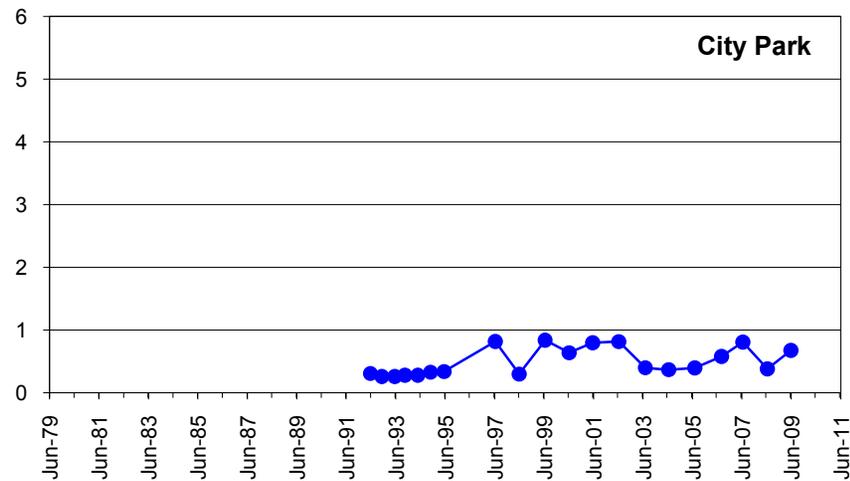
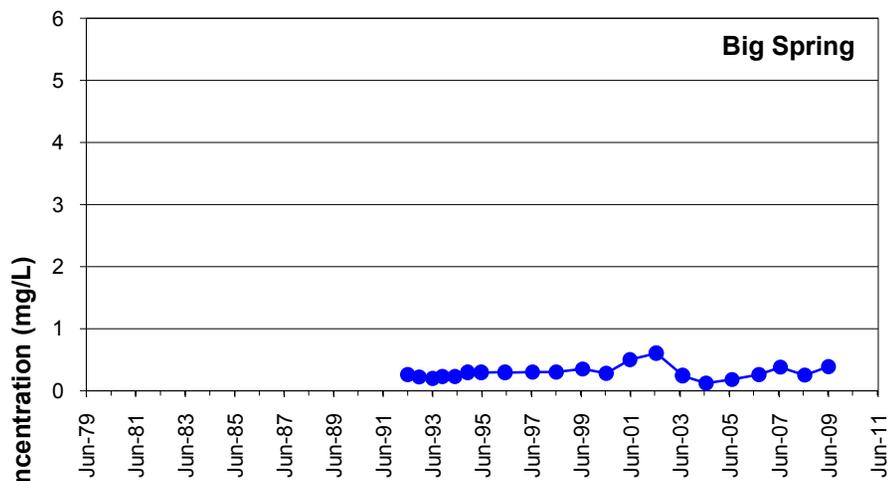
Sample Date

FILE NAME App B Fluoride Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE		Fluoride in East Area Wells		FIGURE B-13	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in Offsite Wells and Springs

FIGURE B-14

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

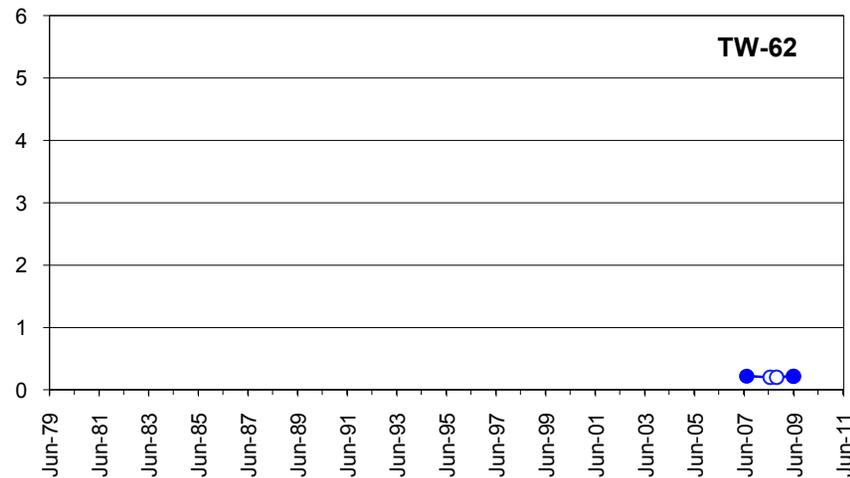
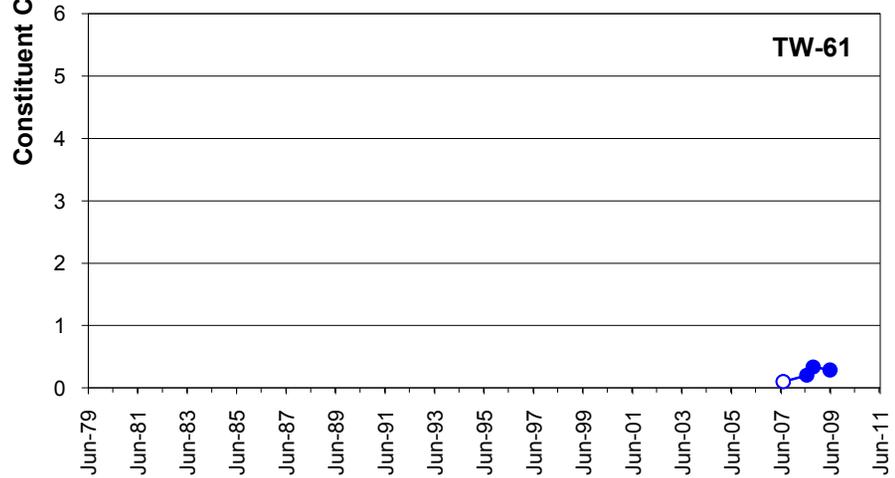
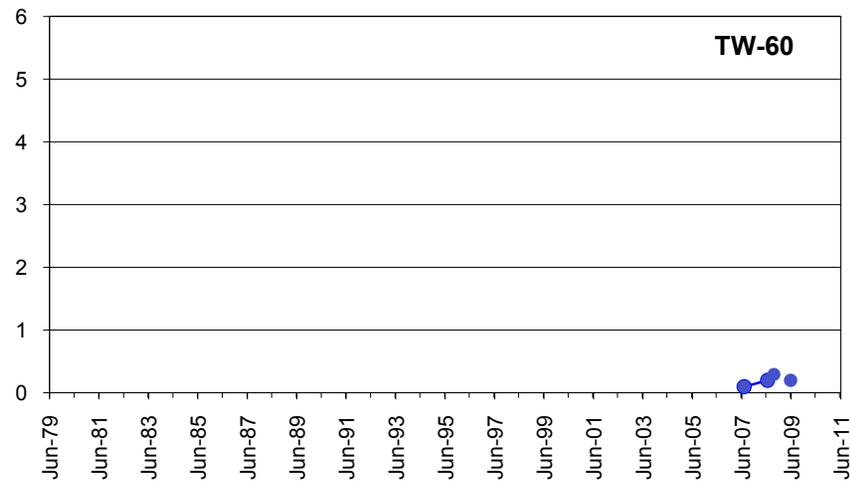
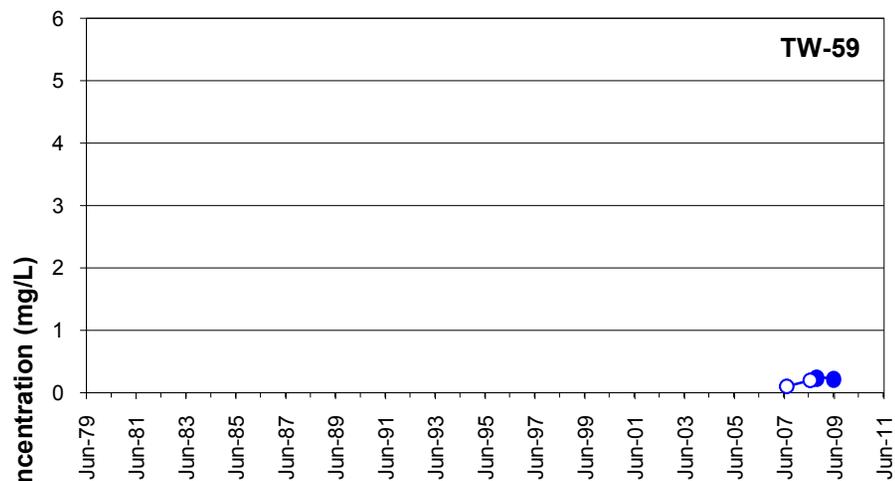
PROJECT Monsanto Groundwater Monitoring

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PROJECT NO. 913-1101.605A

DATE 3-Sep-09

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Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App B Fluoride Charts 2009.xls



TITLE

Fluoride in 2007 Monitoring Wells

FIGURE B-15

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

PROJECT Monsanto Groundwater Monitoring

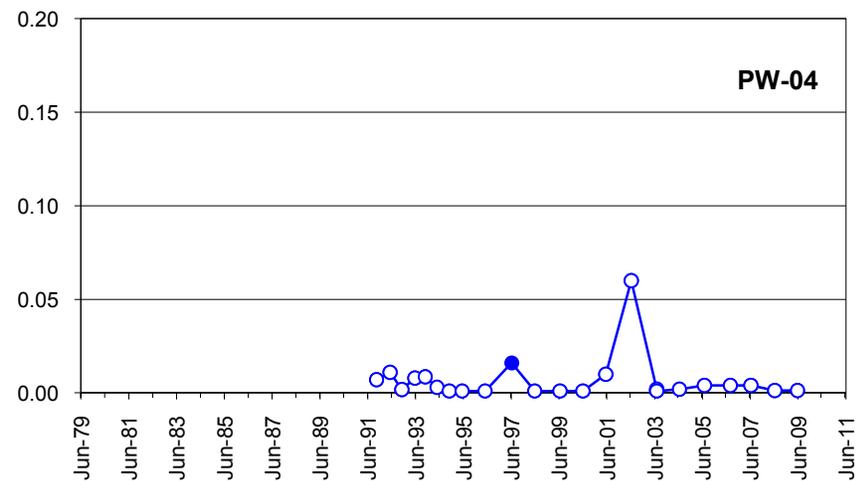
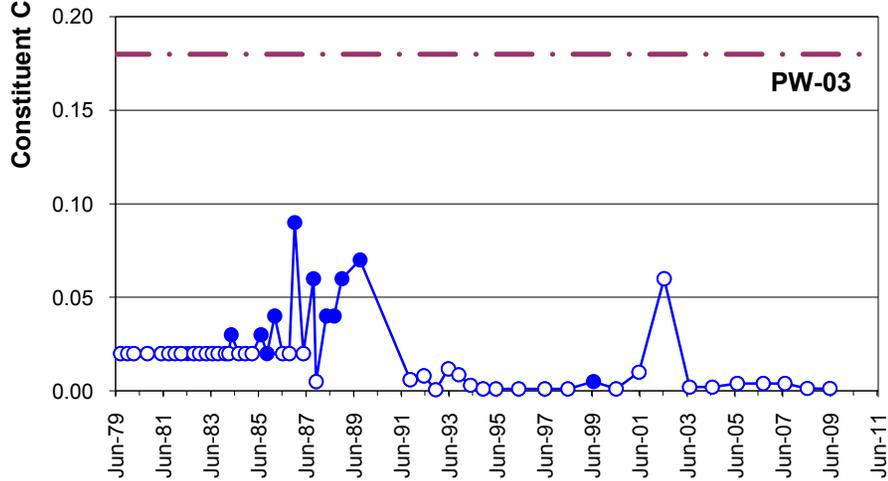
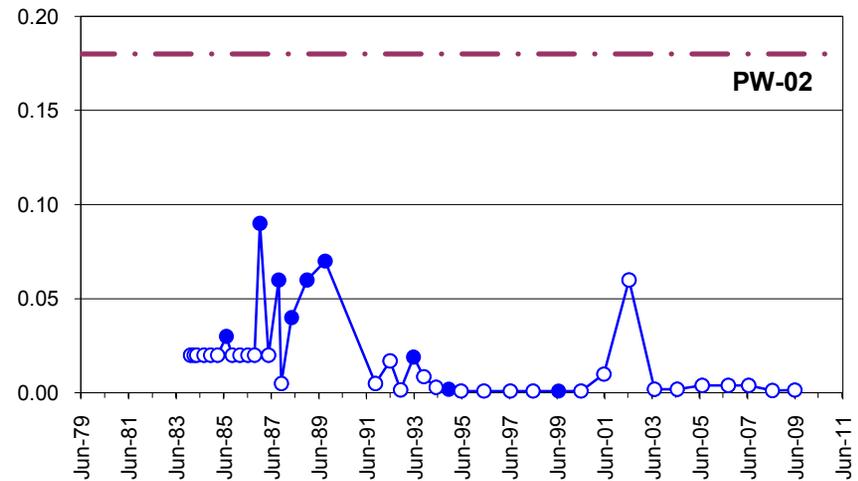
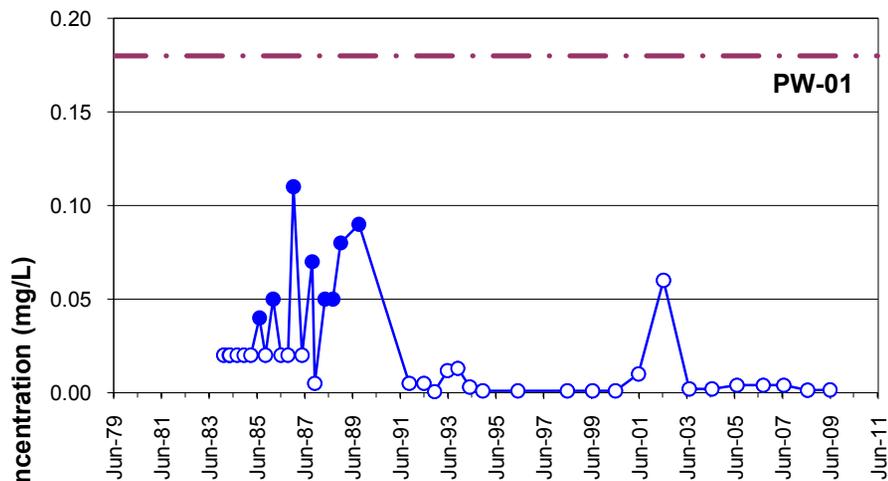
CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

APPENDIX C
TIME-HISTORY GRAPHS FOR MANGANESE



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



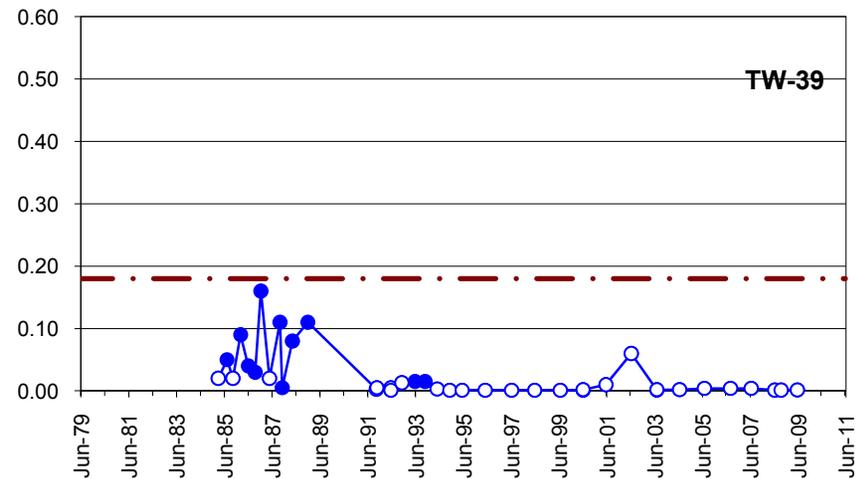
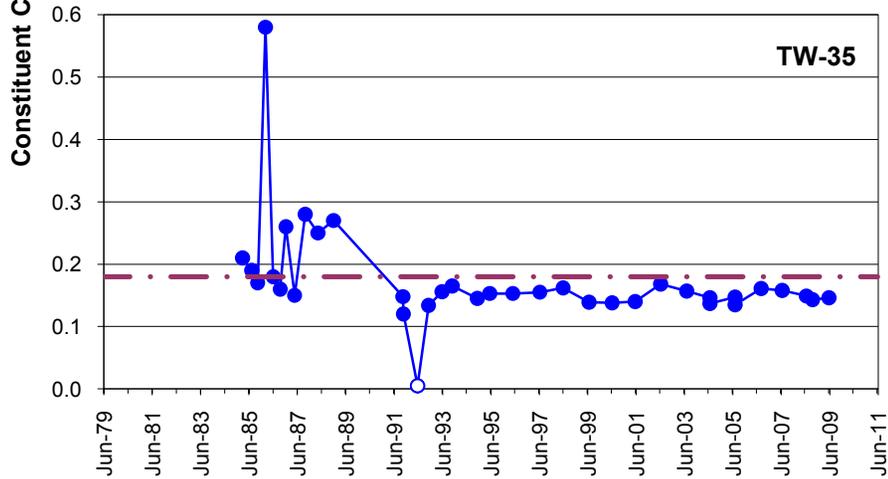
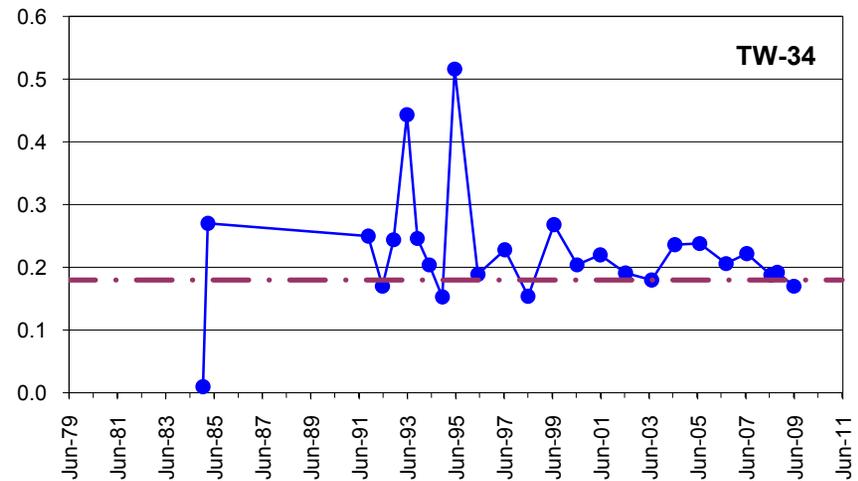
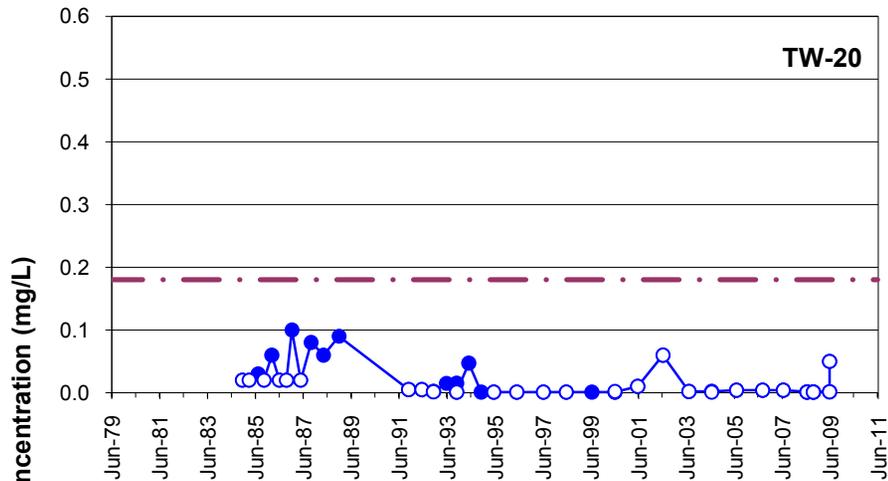
Manganese in Production Wells

FIGURE C-1

- Constituent Concentration (mg/L)
- Non-Detects
- Manganese Remediation Goal (0.18 mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	18-Nov-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



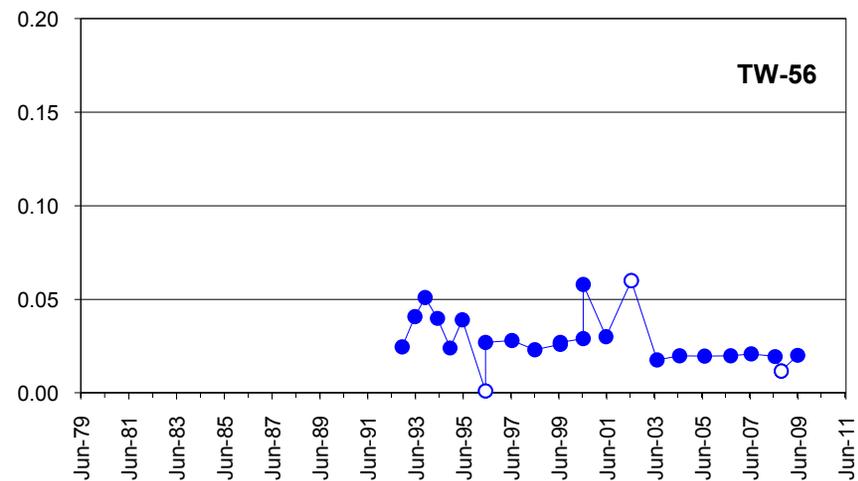
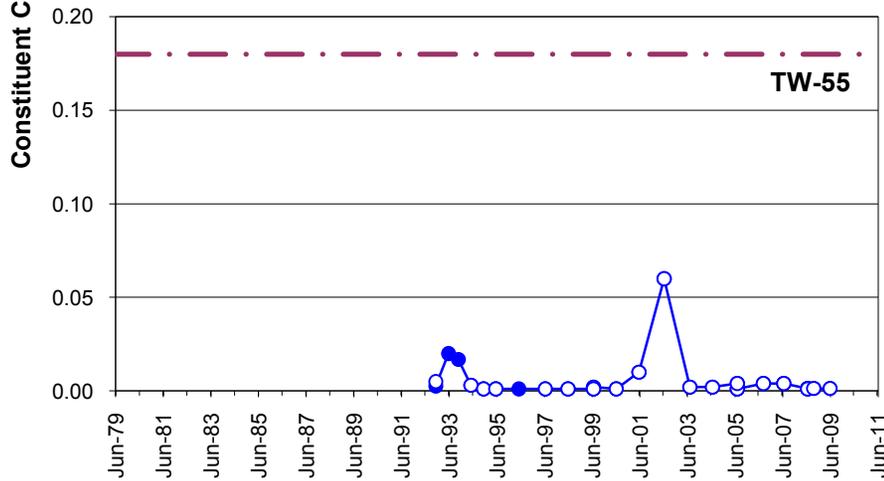
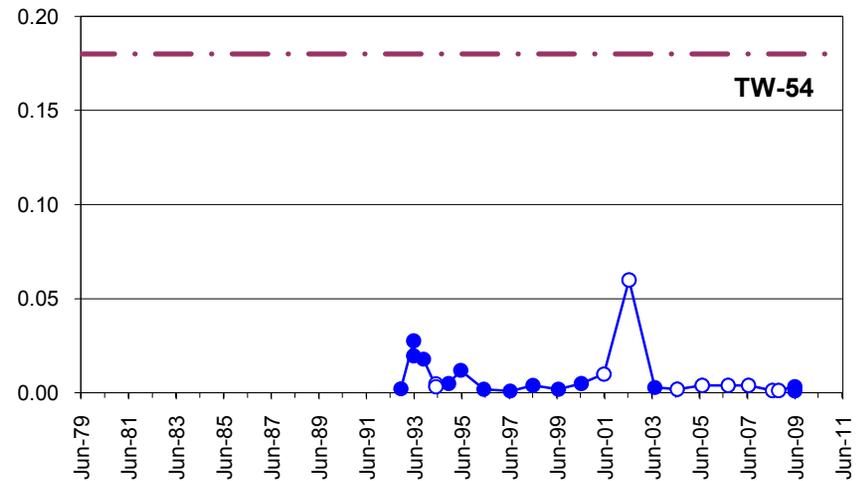
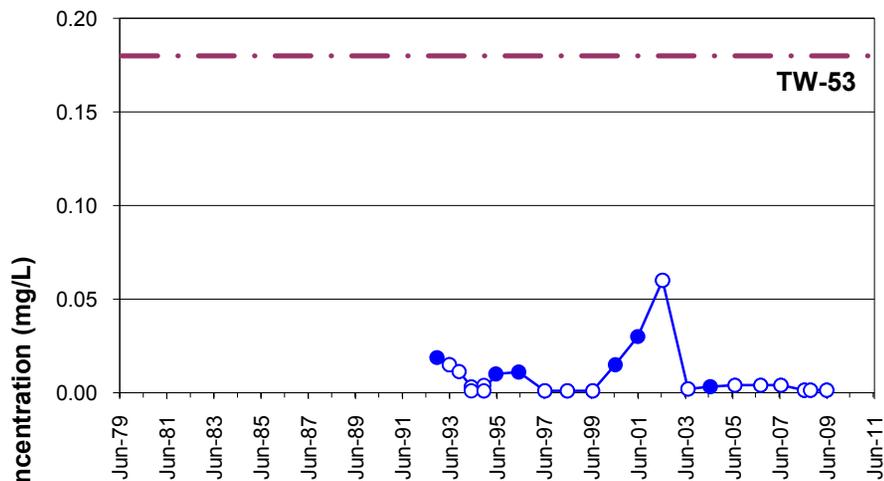
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE		Manganese in South Fenceline Wells		FIGURE C-2	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - · - Manganese Remediation Goal (0.18 mg/L) 	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	18-Nov-09	REVIEWED
					DB



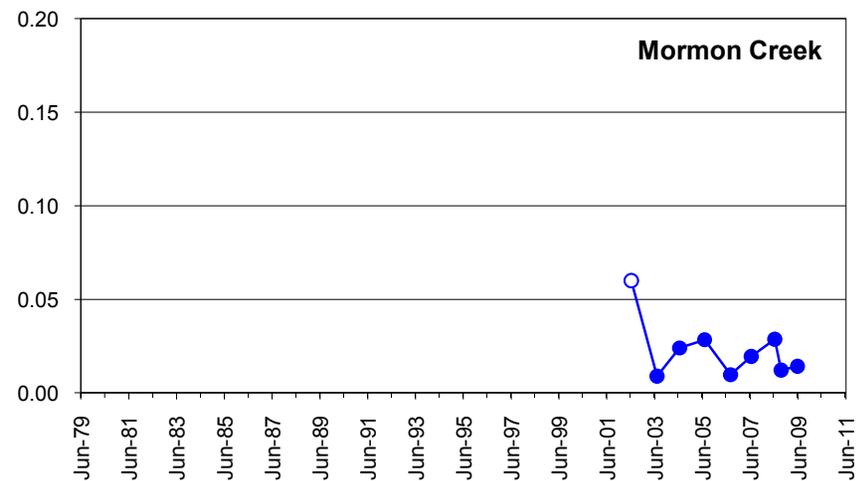
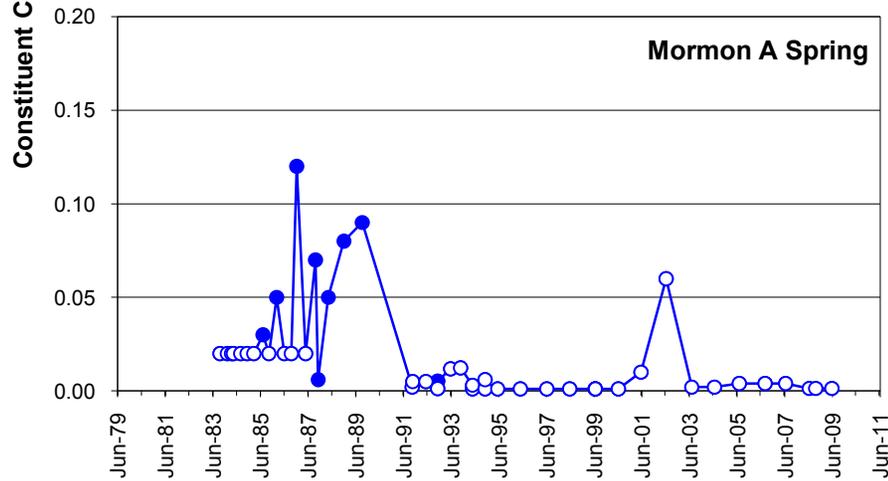
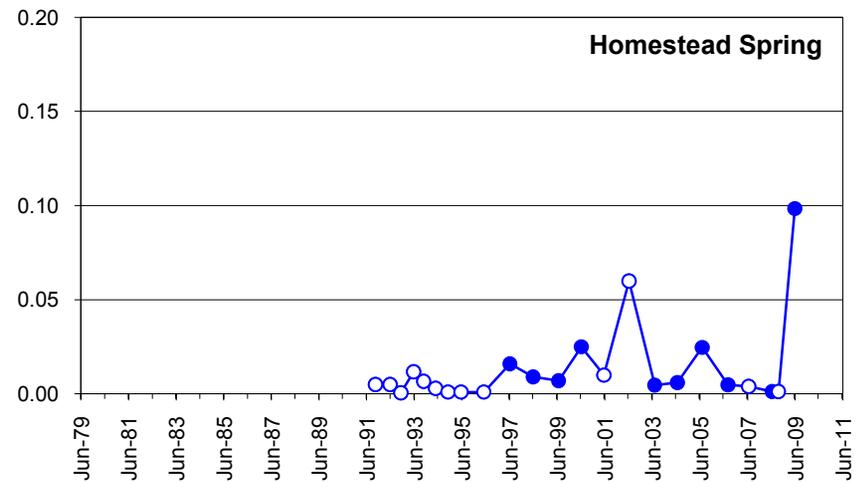
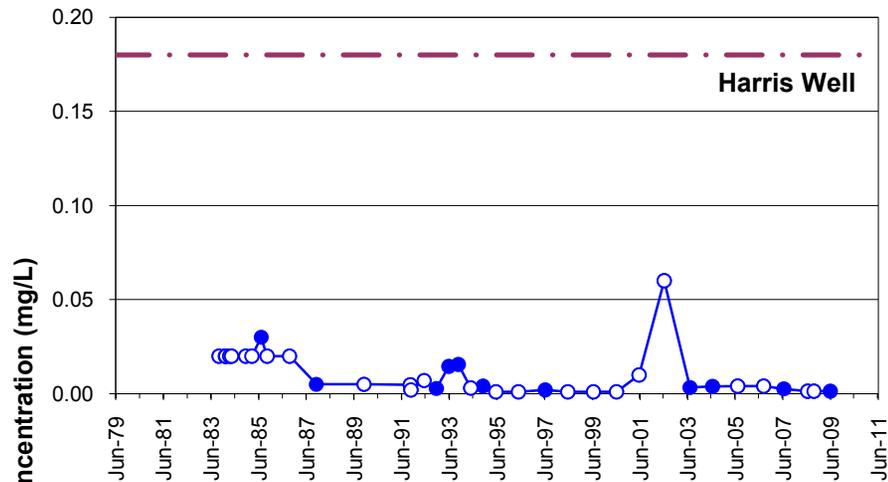
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE		Manganese in Southern Boundary Wells		FIGURE C-3	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - · - Manganese Remediation Goal (0.18 mg/L) 		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB



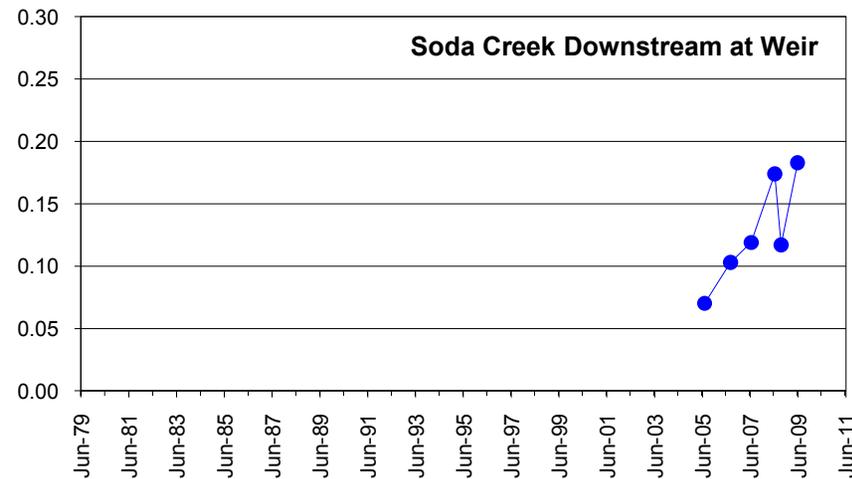
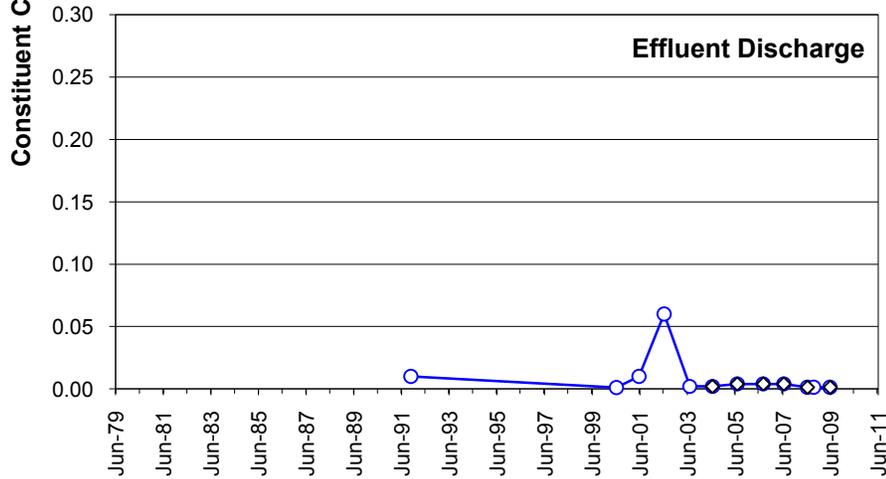
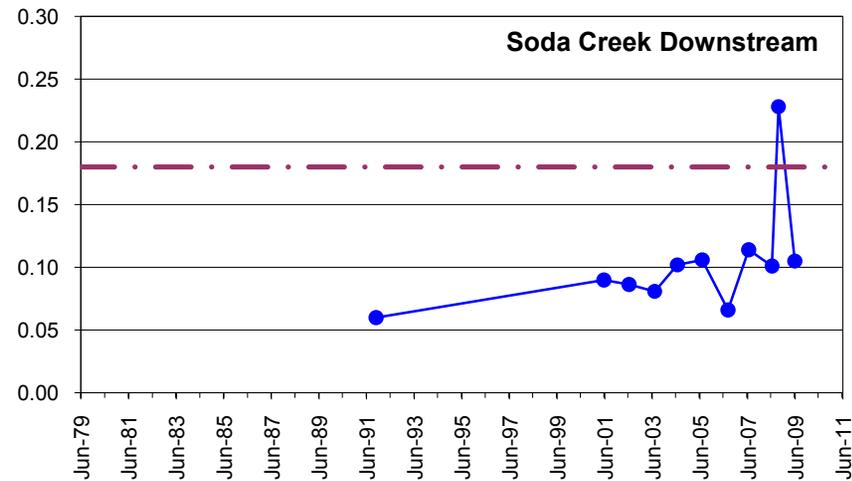
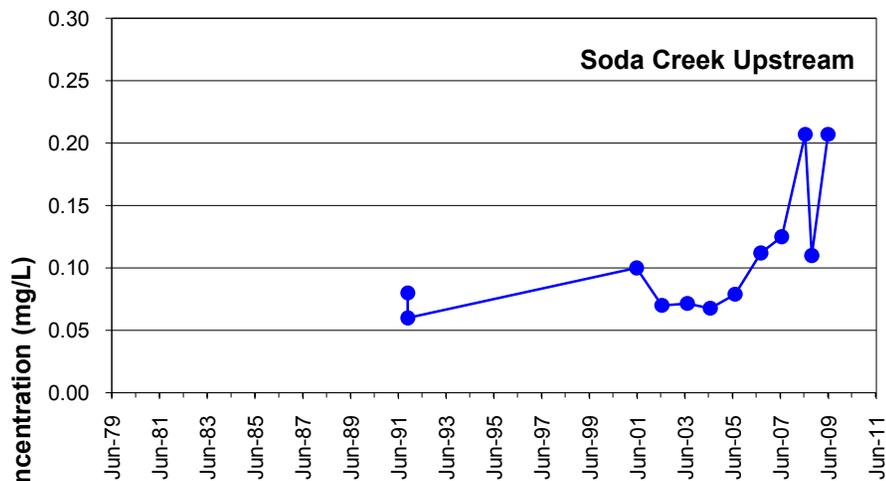
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE		Manganese in Harris Well and Springs South of Plant		FIGURE C-4	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - · - Manganese Remediation Goal (0.18 mg/L) 	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED



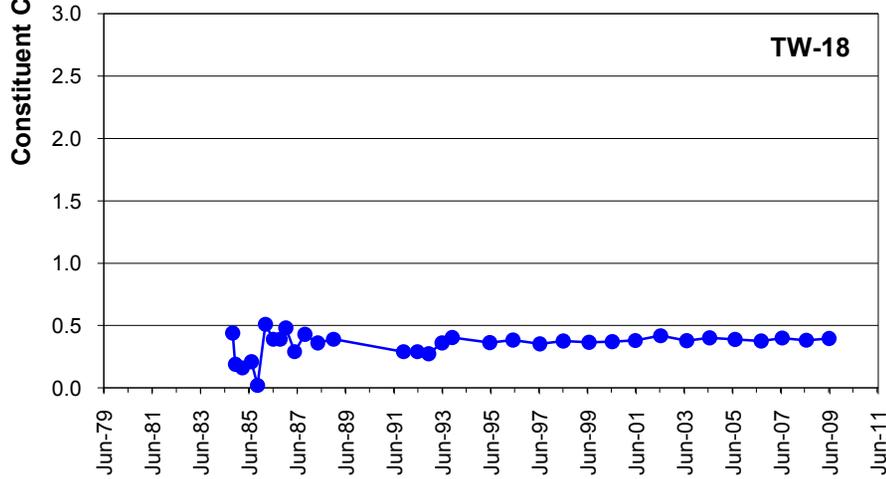
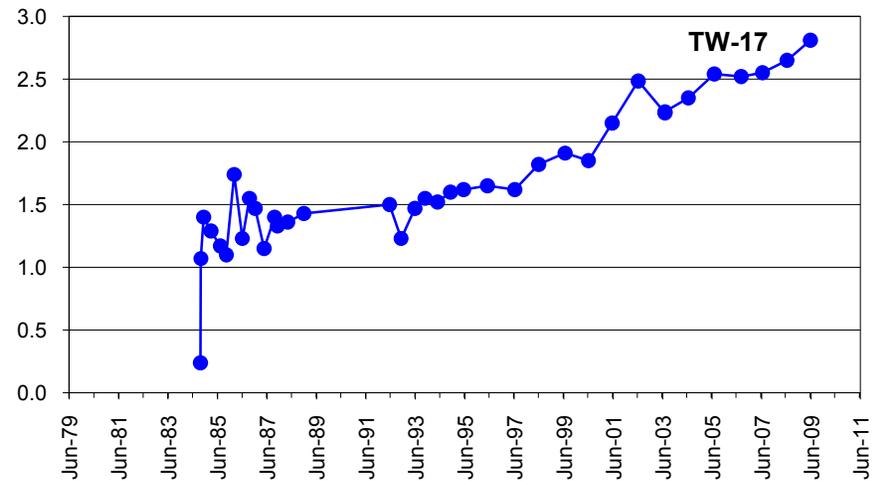
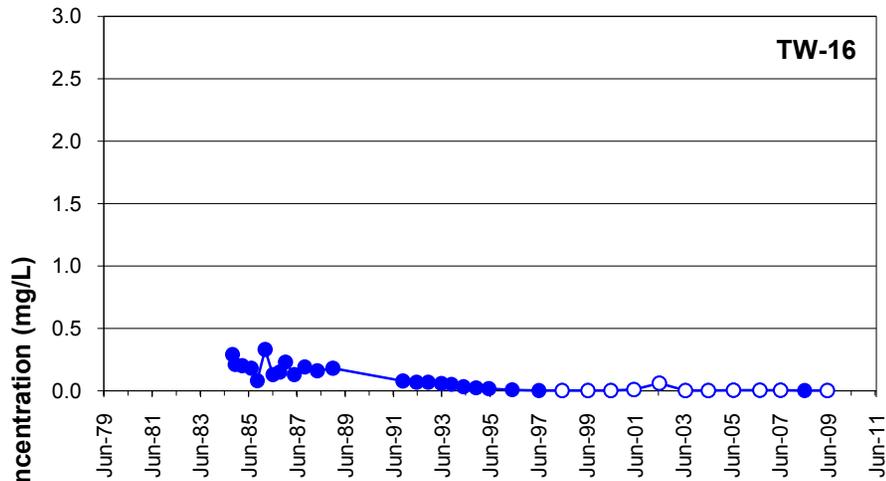
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE		Manganese in Soda Creek and Treatment Plant Effluent		FIGURE C-5	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-detect — • Fluoride Remediation Goal (4 mg/L) ◇ Pond Inlet (non-detects) 		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



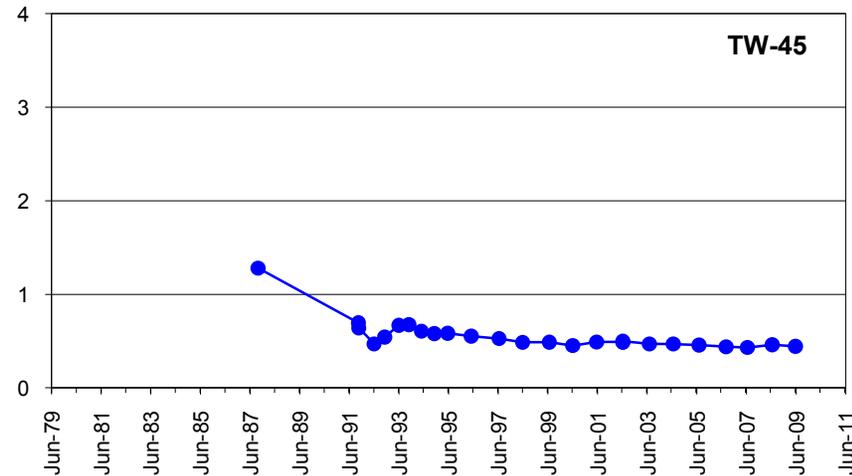
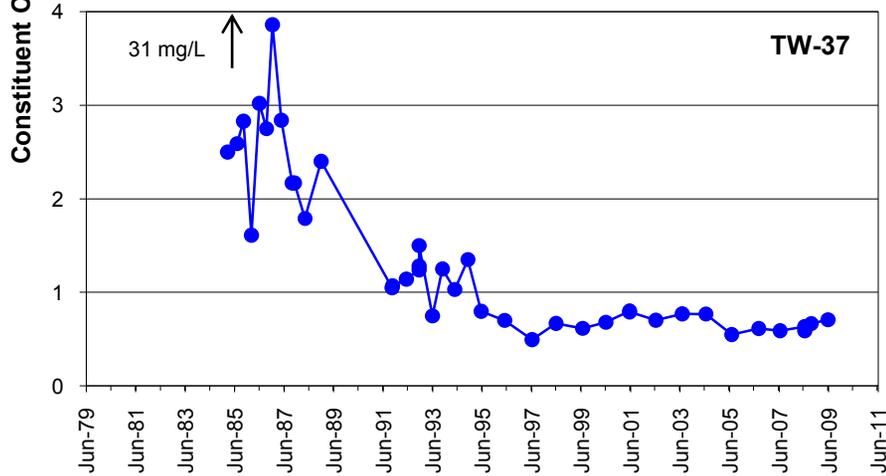
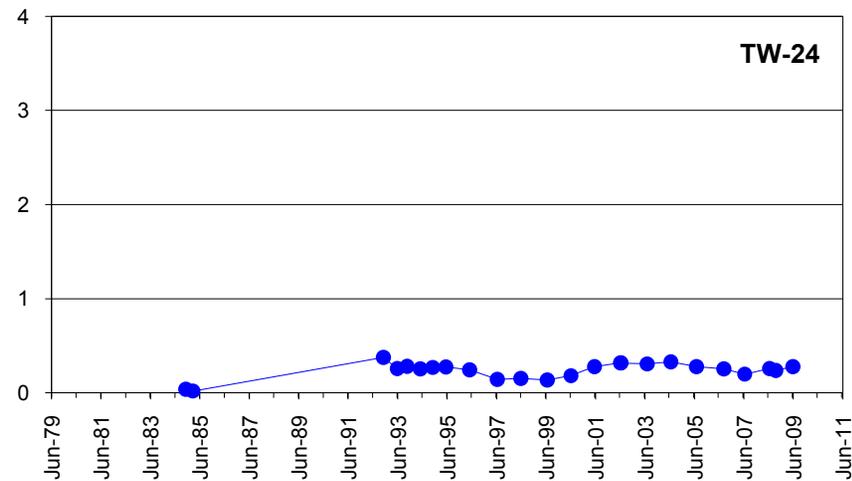
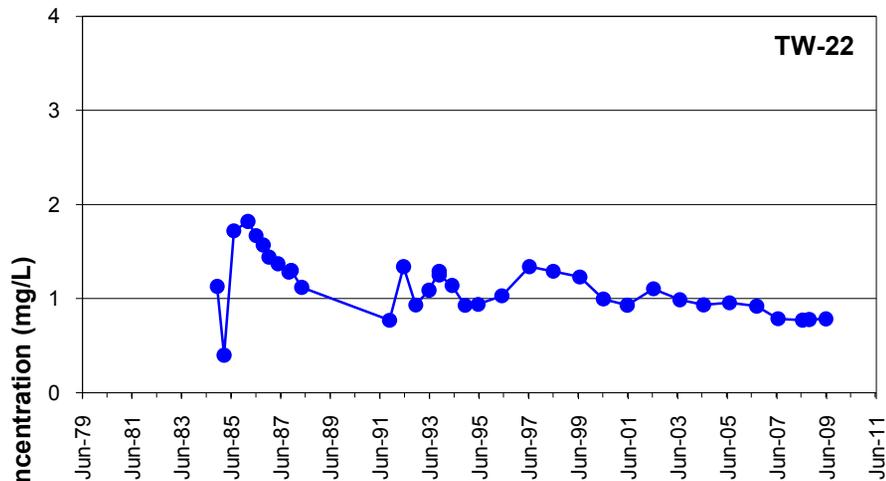
TITLE **Manganese in NW Pond Wells**

FIGURE C-6

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



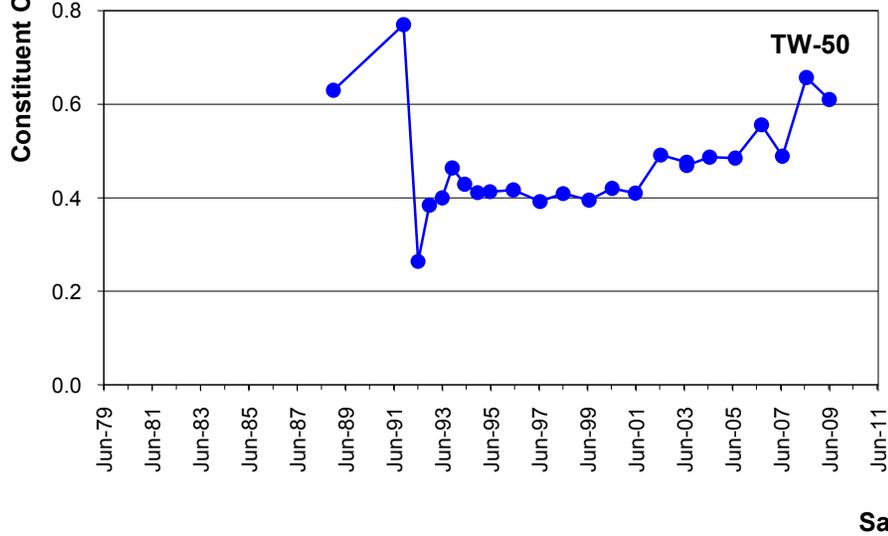
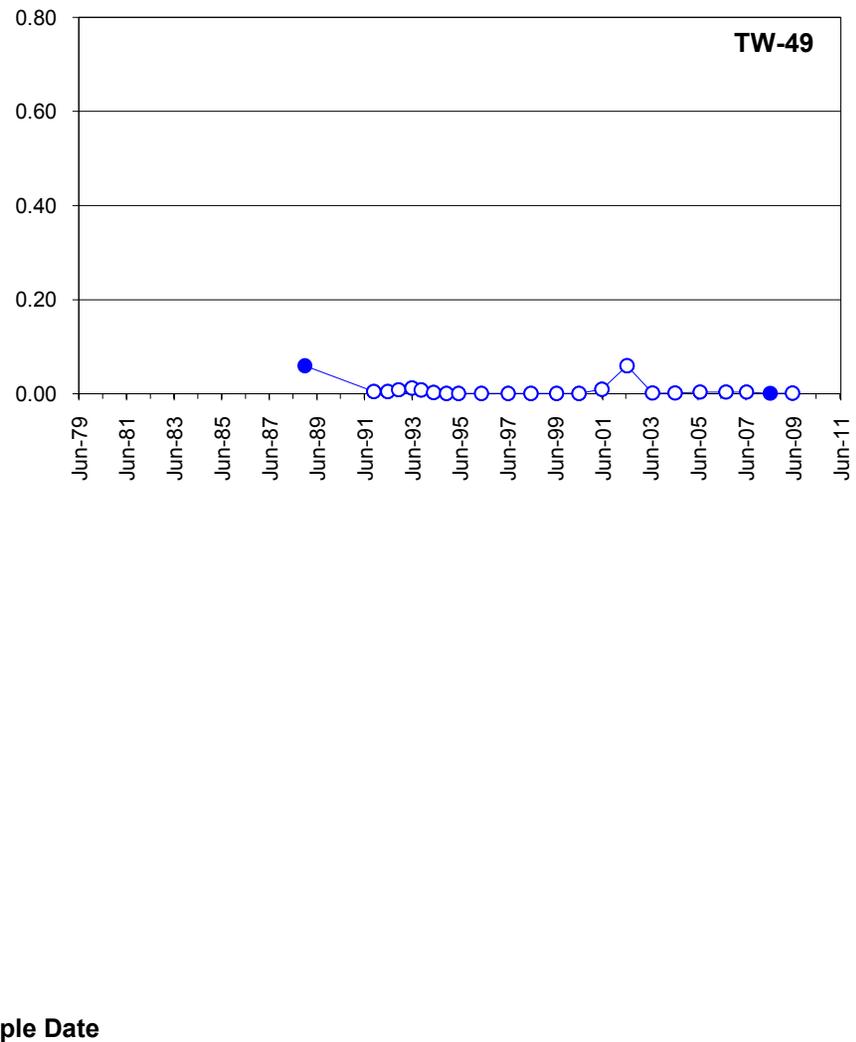
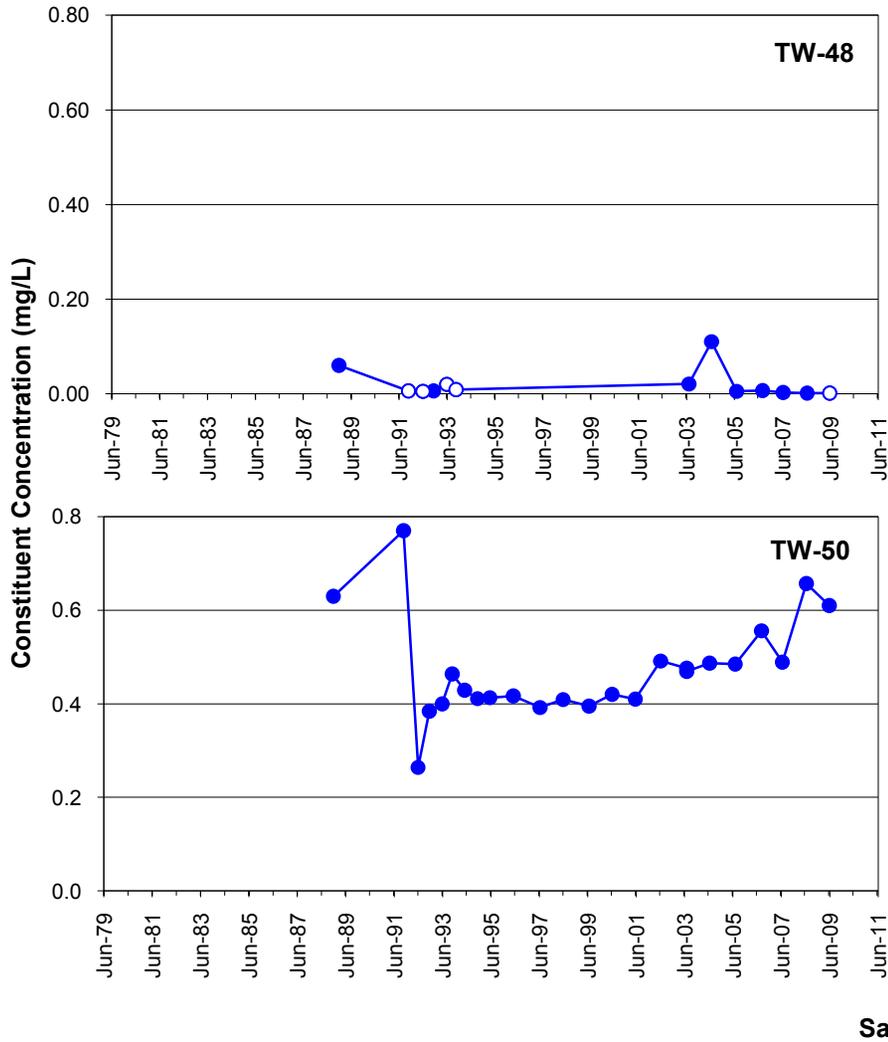
TITLE **Manganese in Old Underflow Solids Pond Area Wells**

FIGURE C-7

—●— Constituent Concentration (mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



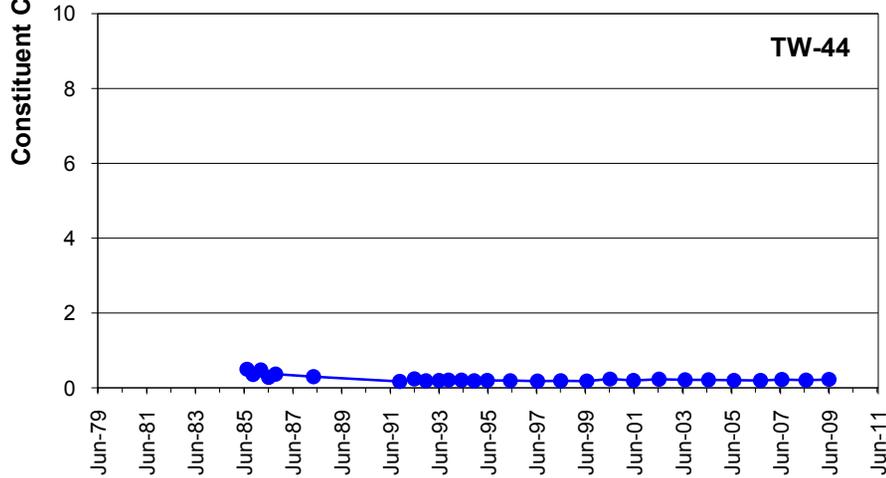
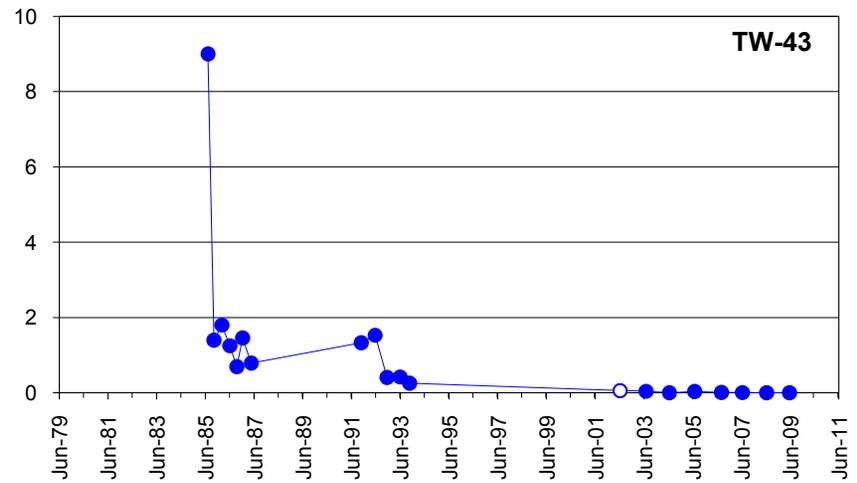
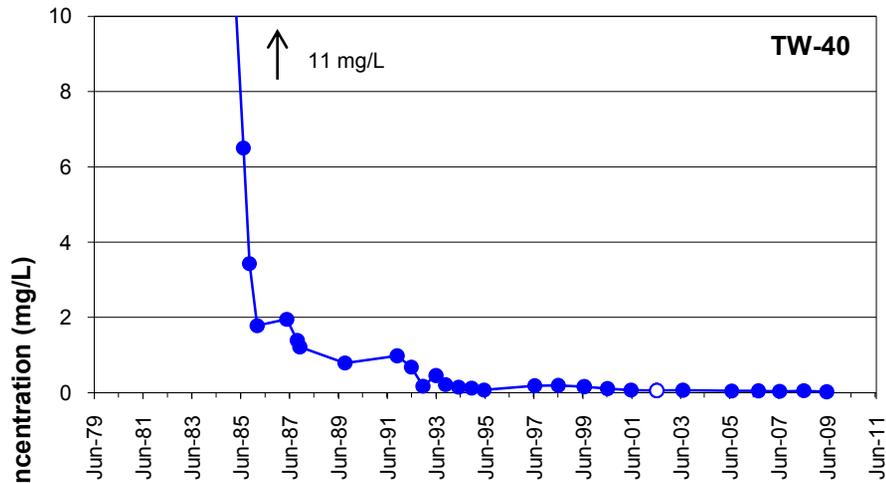
Sample Date

FILE NAME App C Manganese Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE		Manganese in Underflow Solids Piles Area Wells		FIGURE C-8	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB



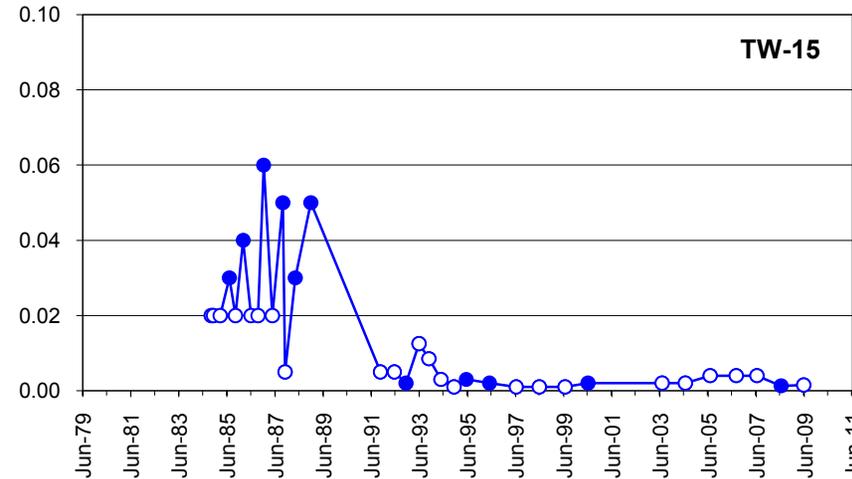
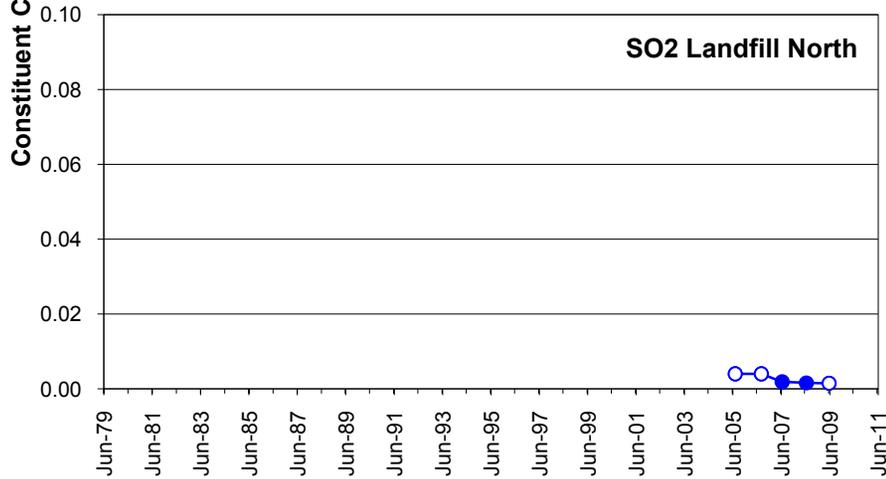
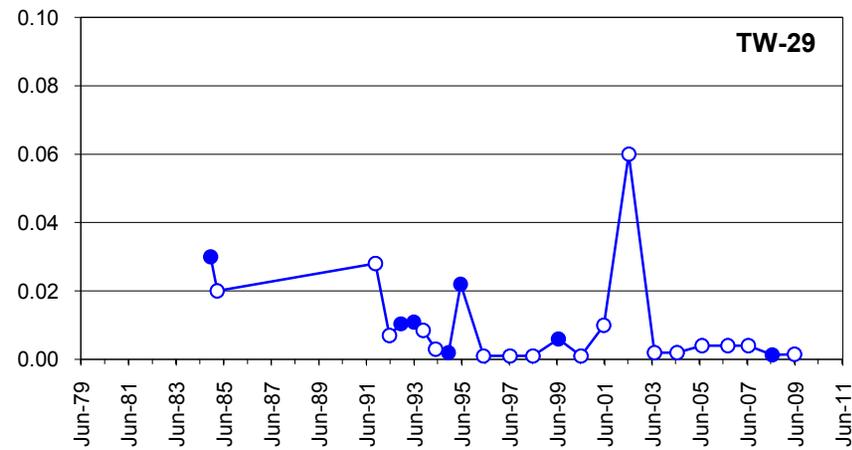
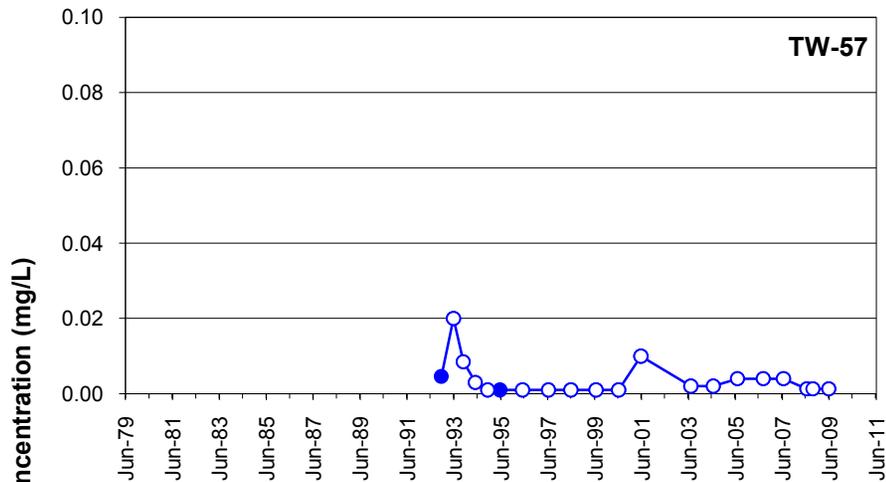
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE		Manganese in Hydroclarifier Area Wells		FIGURE C-9	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



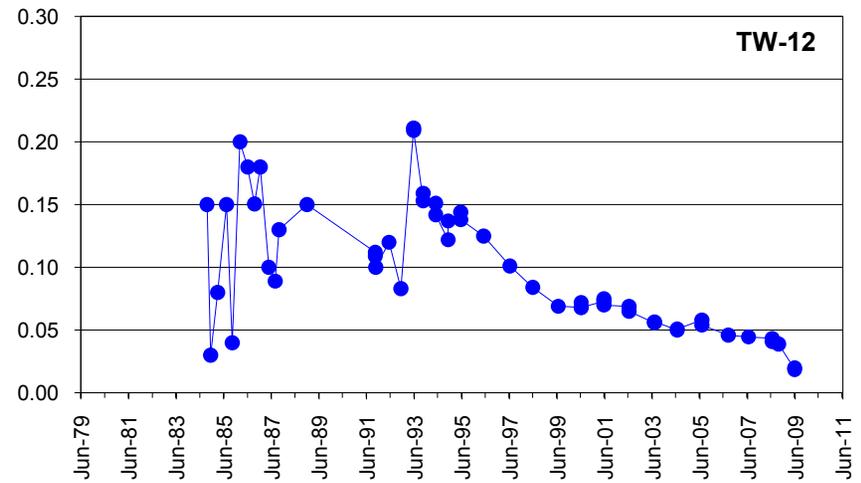
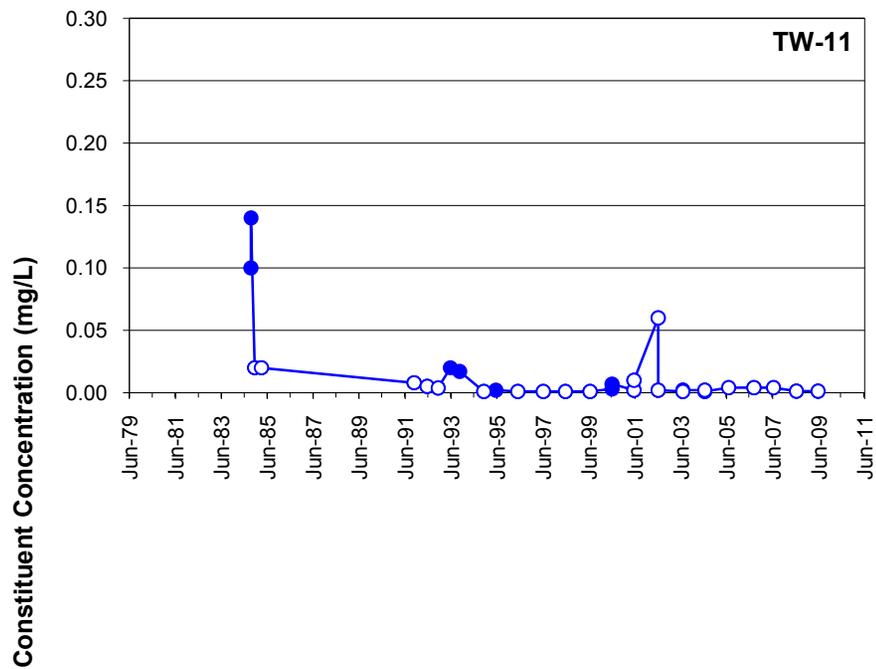
TITLE **Manganese in Background Area Wells**

FIGURE C-10

—●— Constituent Concentration (mg/L) ○ Non-detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



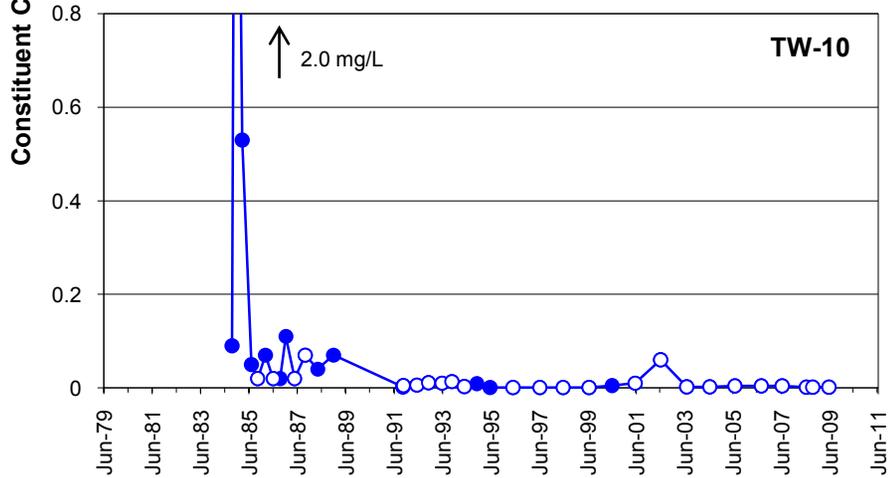
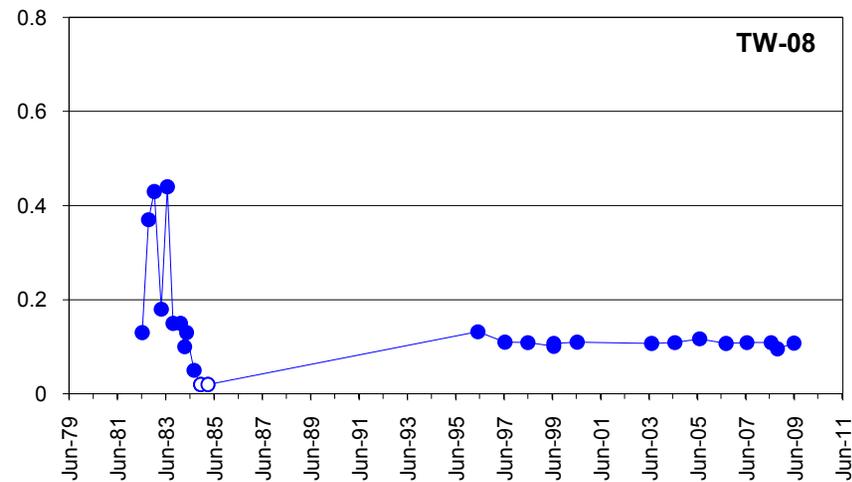
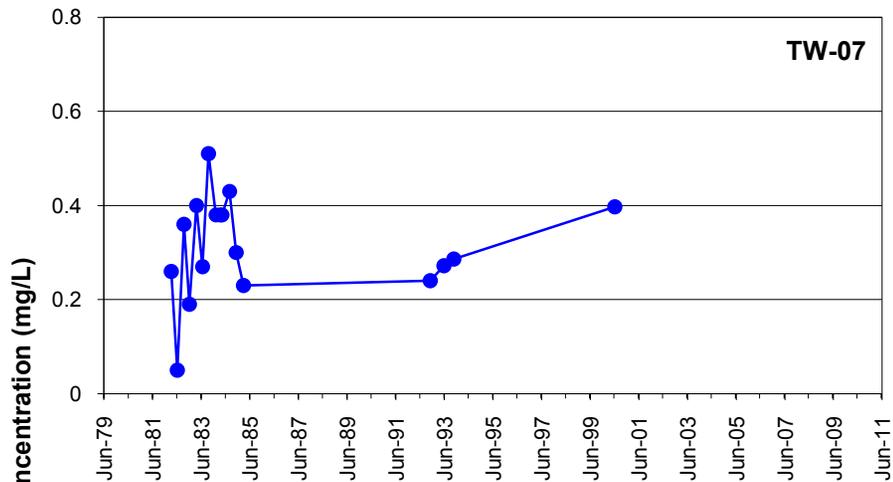
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE		Manganese in Southeast Corner Wells		FIGURE C-11	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



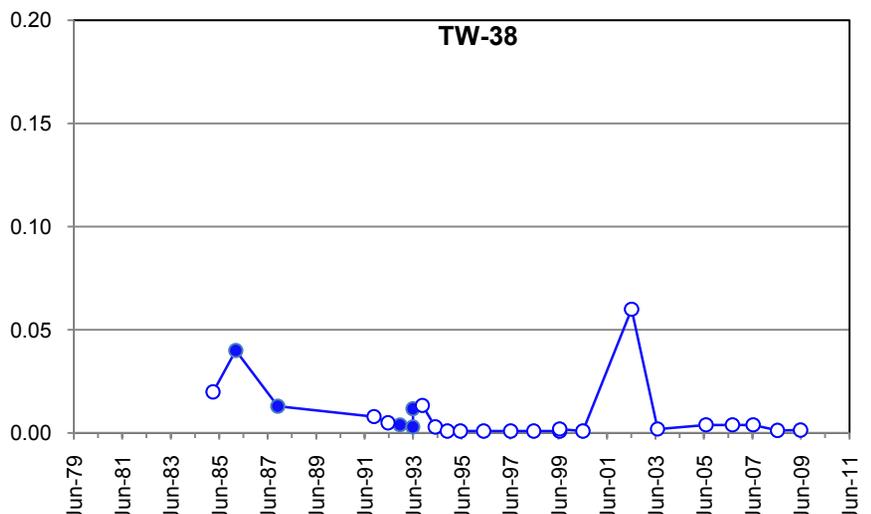
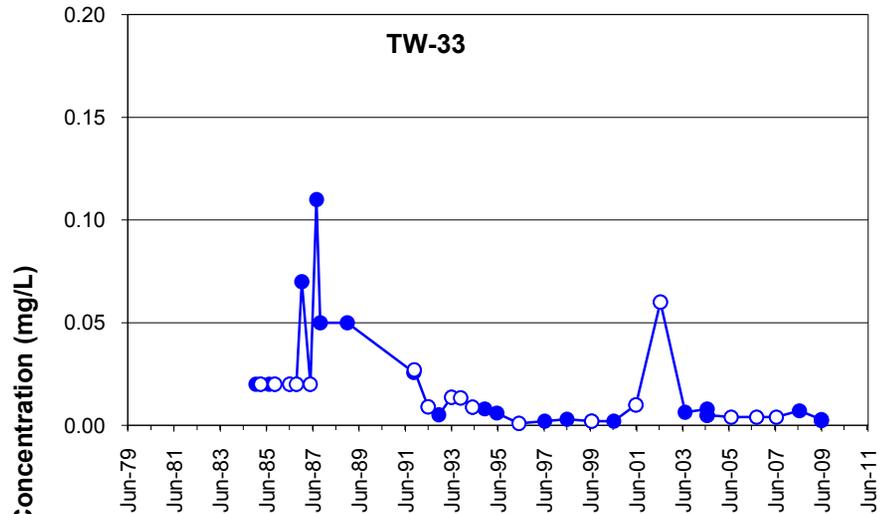
TITLE **Manganese in Southwest Corner Wells**

FIGURE C-12

● Constituent Concentration (mg/L) ○ Non-detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



Sample Date

FILE NAME App C Manganese Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE **Manganese in East Area Wells**

FIGURE C-13

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

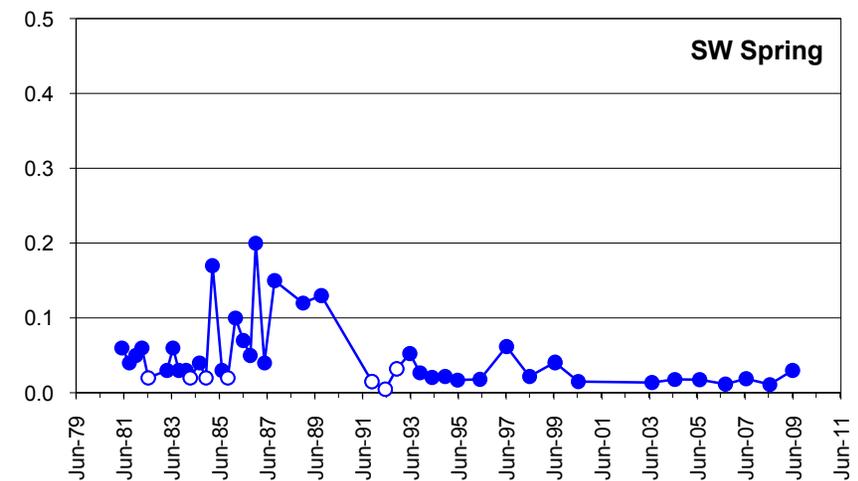
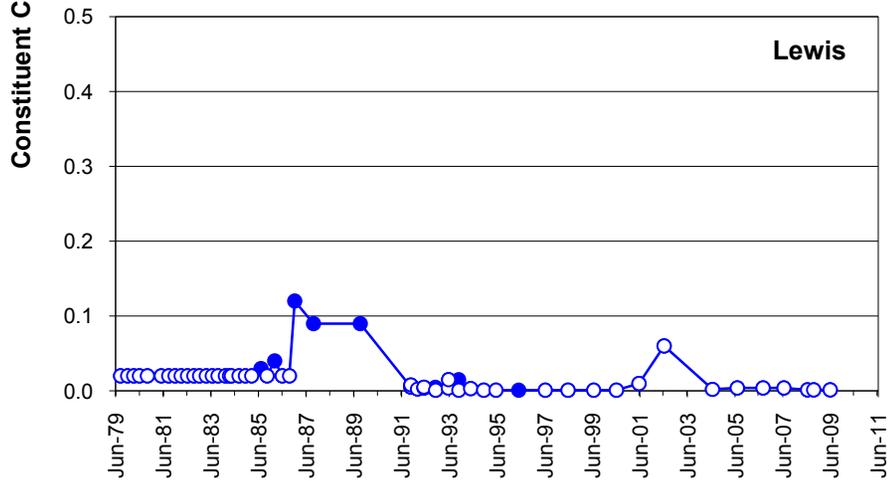
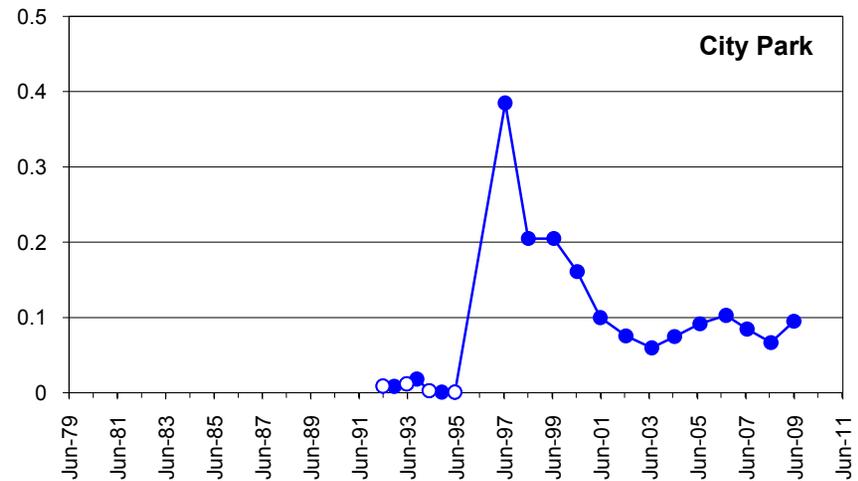
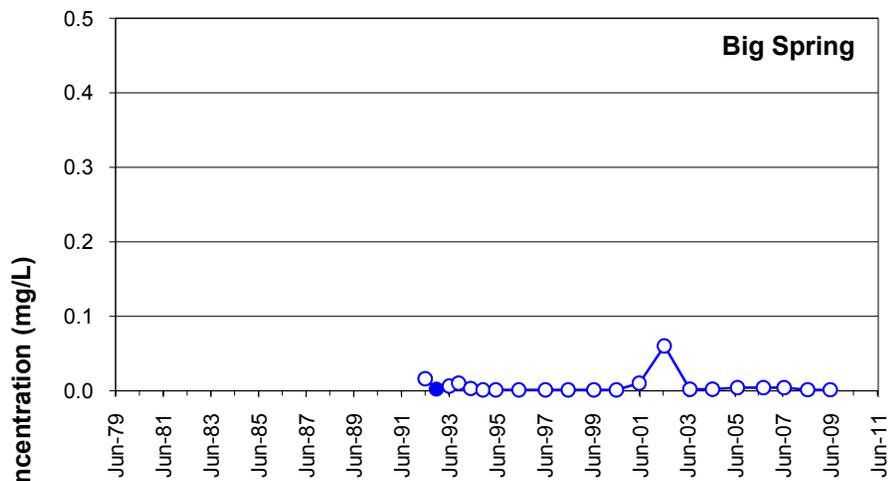
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 19-Oct-09

REVIEWED DB



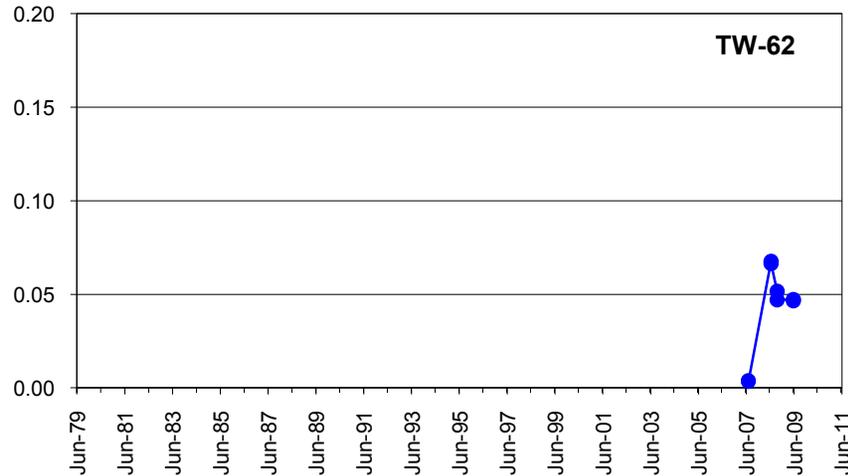
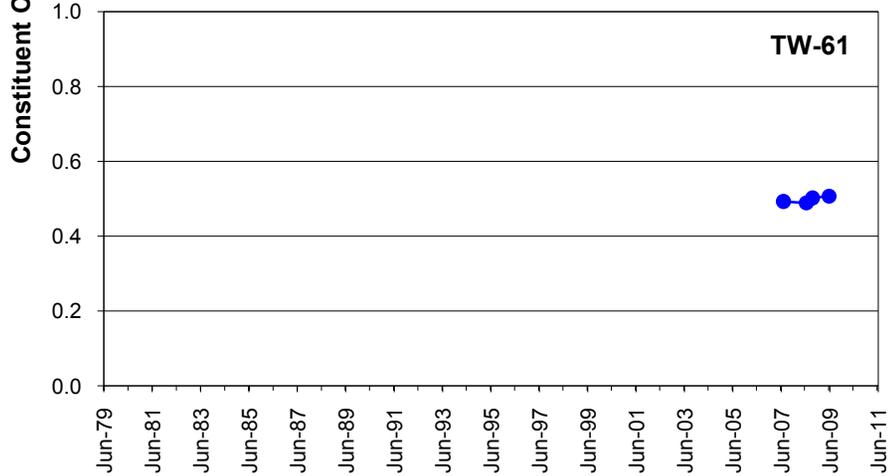
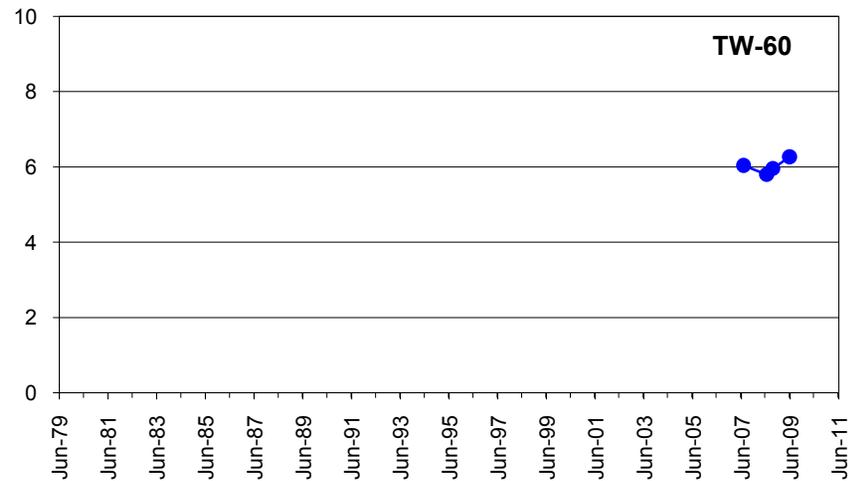
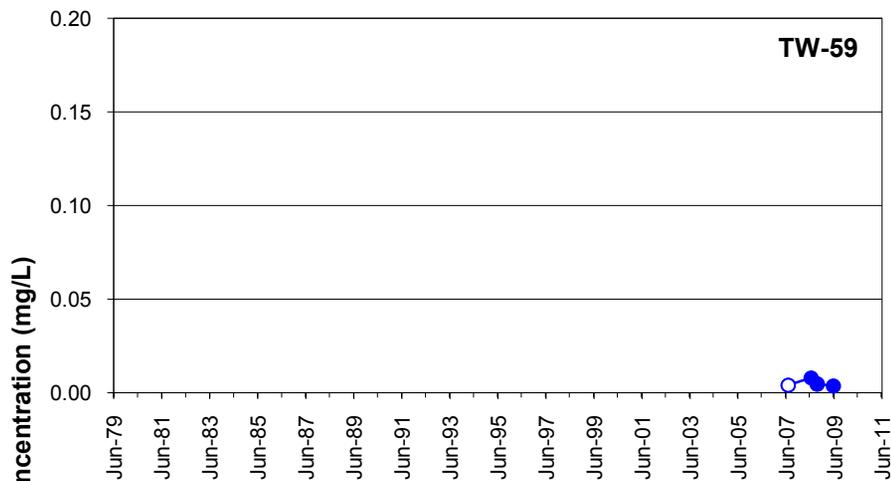
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE		Manganese in Offsite Wells and Springs		FIGURE C-14	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App C Manganese Charts 2009.xls



TITLE **Manganese in 2007 Monitoring Wells**

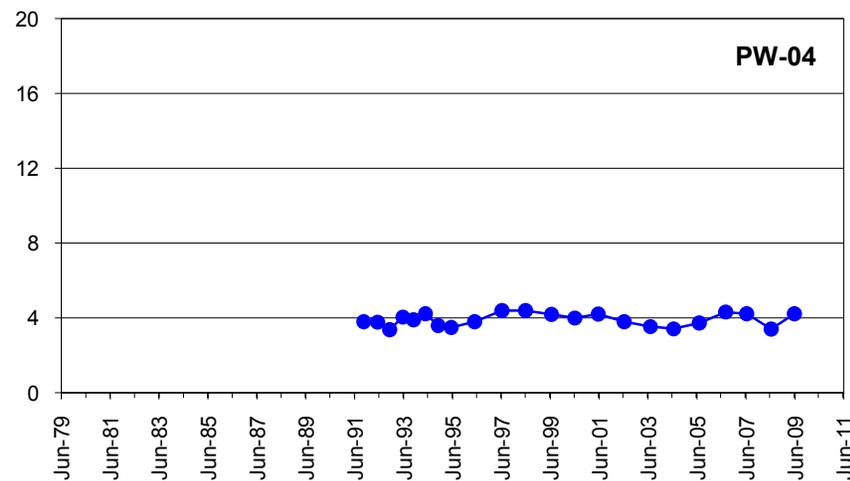
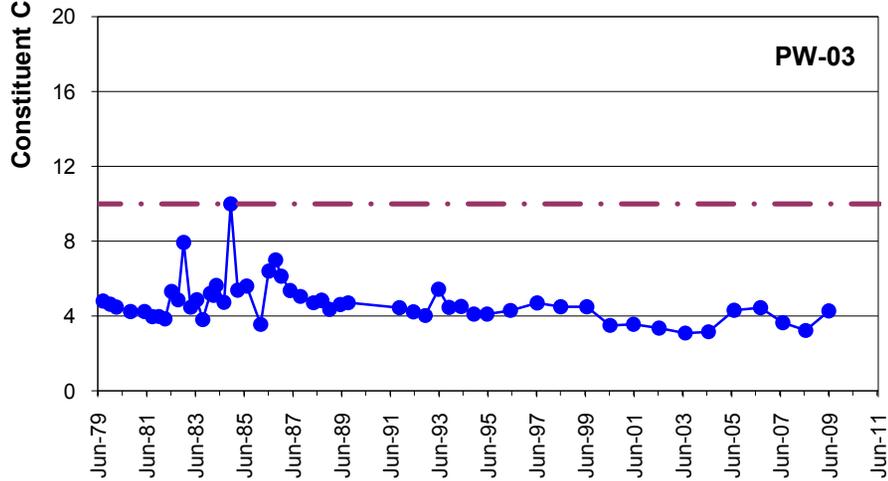
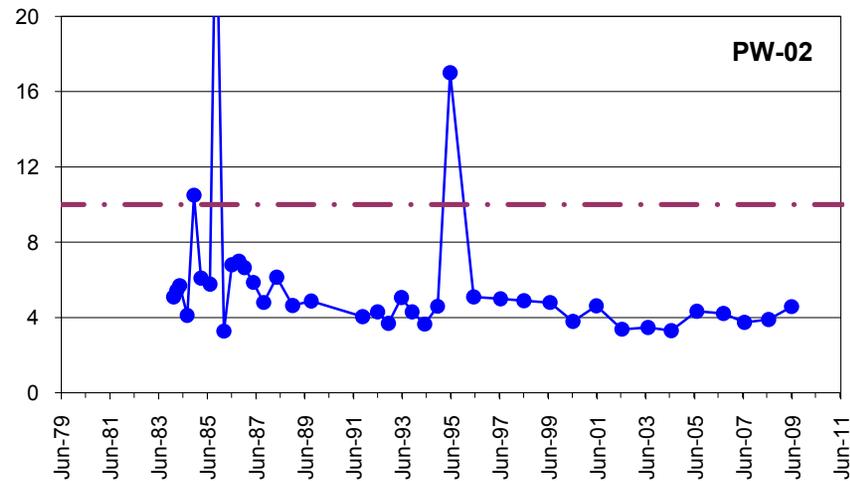
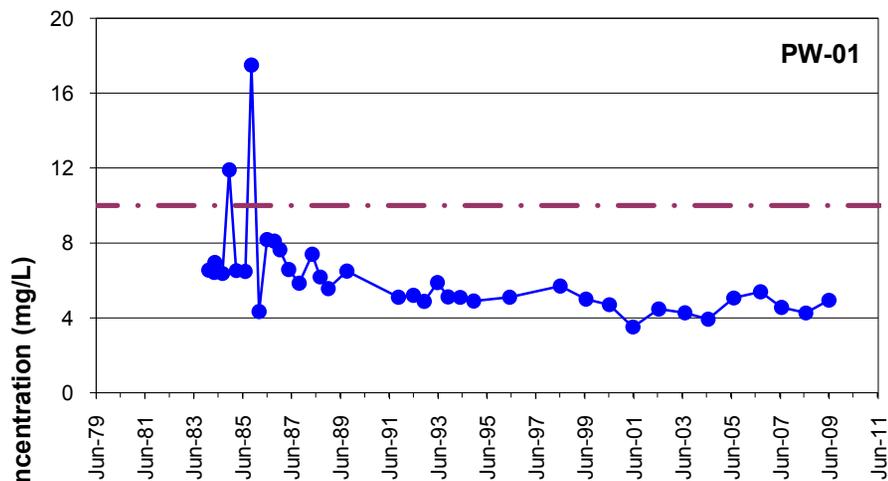
FIGURE C-15

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB

APPENDIX D
TIME-HISTORY GRAPHS FOR NITRATE AS N



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

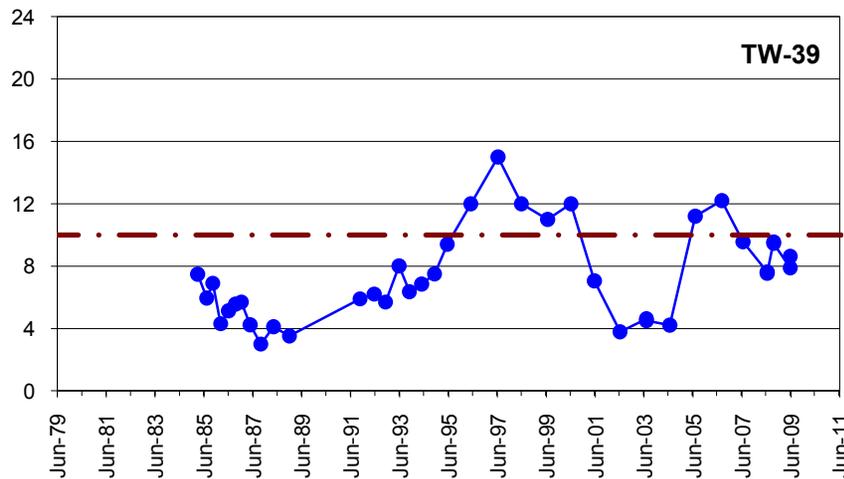
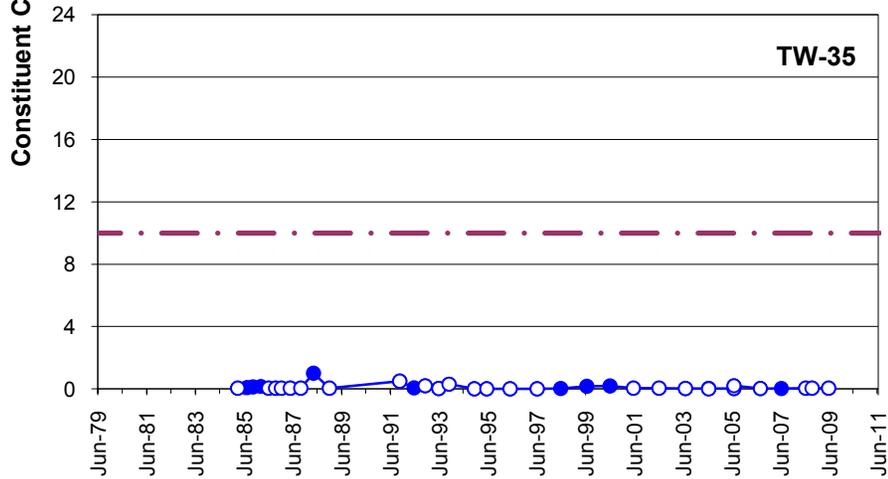
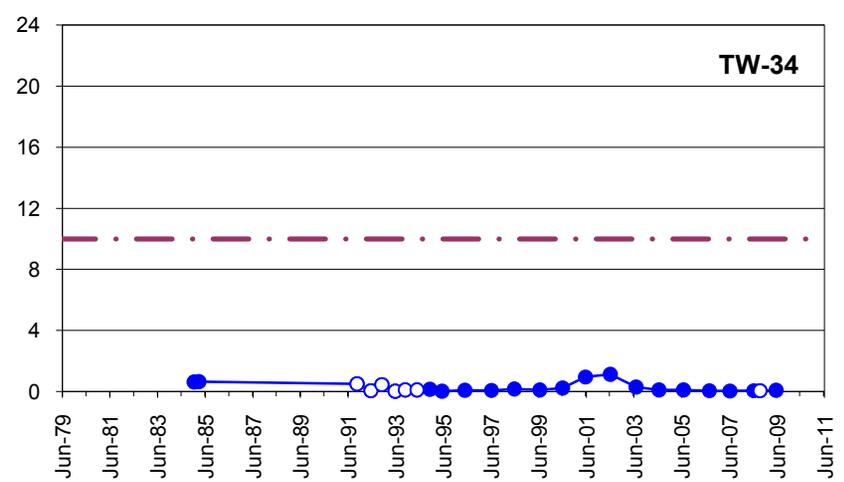
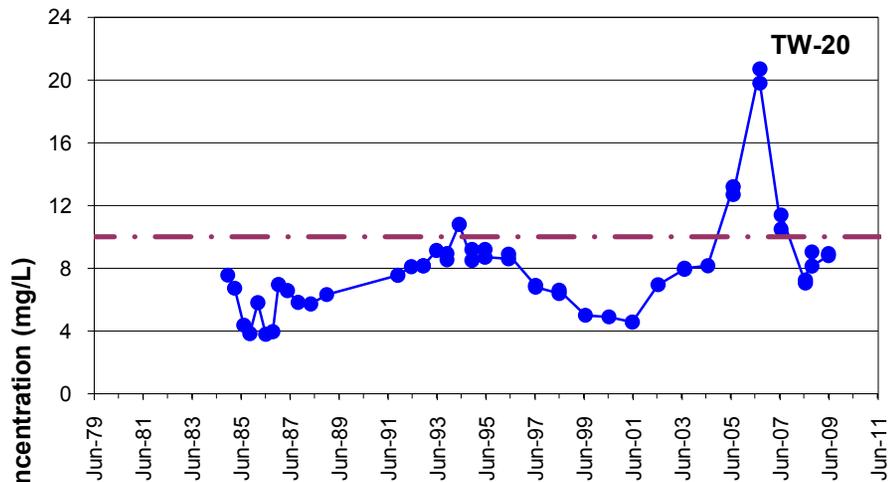
Nitrate in Production Wells

FIGURE D-1

- Constituent Concentration (mg/L)
- Non-Detects
- • Nitrate as N Remediation Goal (10 mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

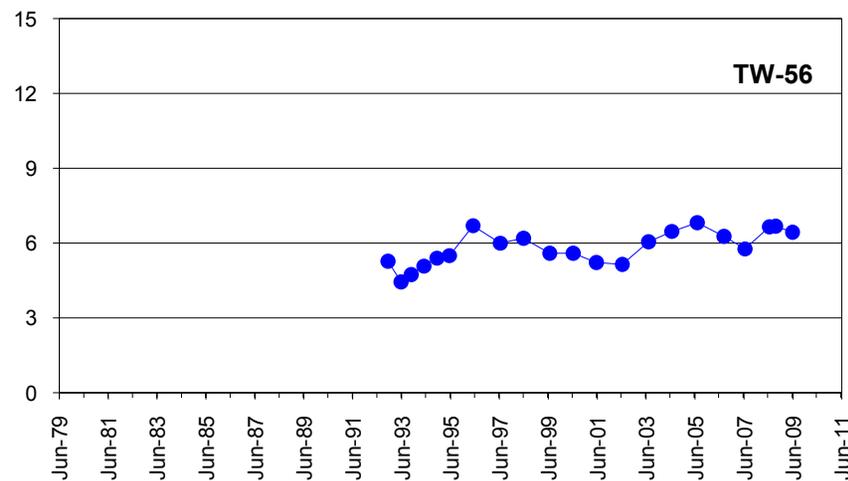
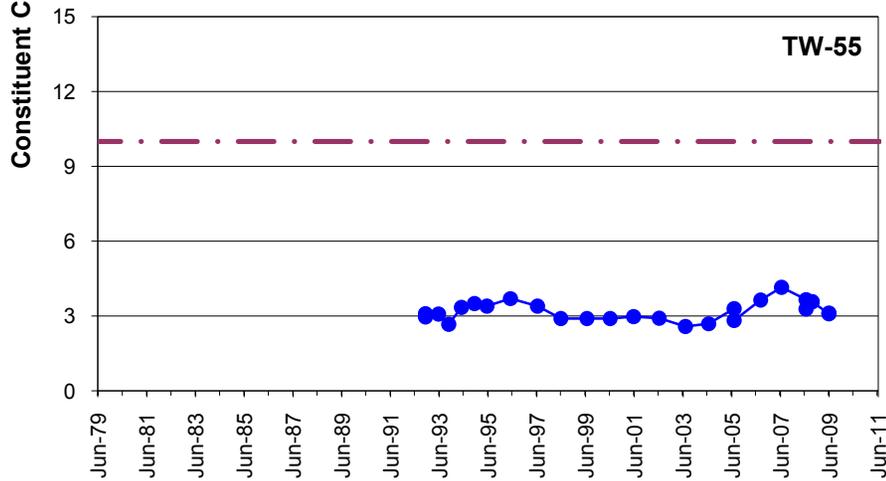
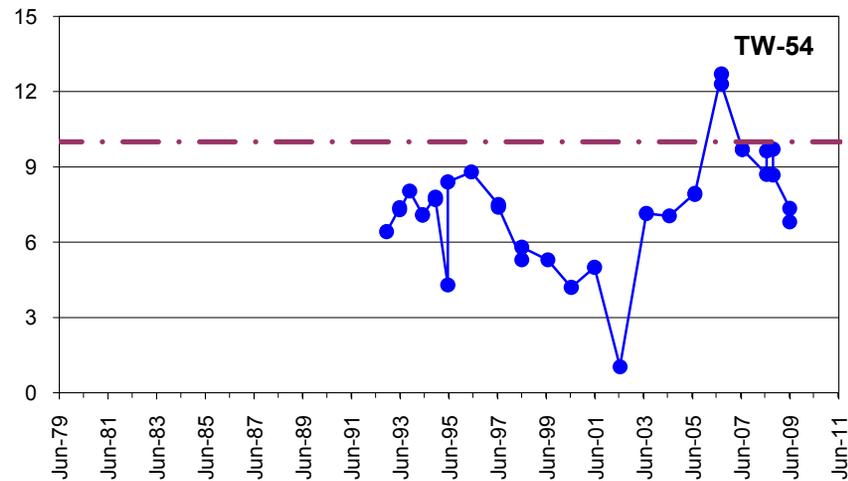
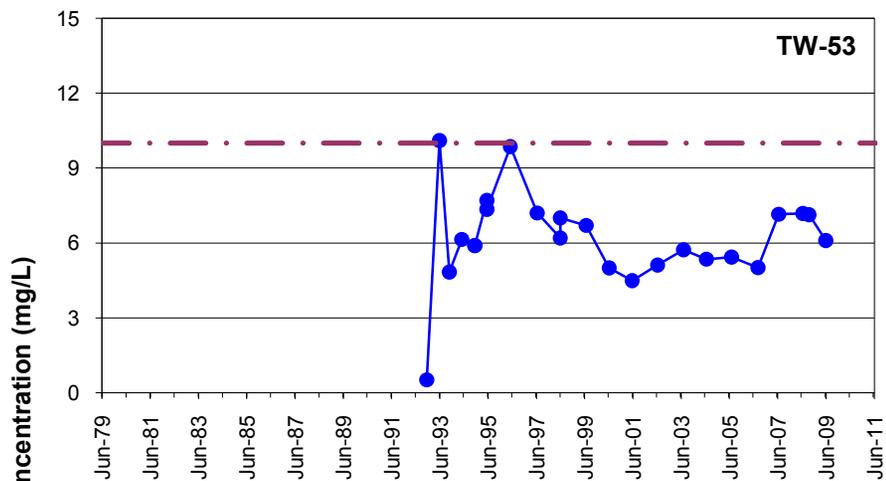
Nitrate in South Fenceline Wells

FIGURE D-2

- Constituent Concentration (mg/L)
- Non-Detects
- Nitrate as N Remediation Goal (10 mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

Nitrate in Southern Boundary Wells

FIGURE D-3

- Constituent Concentration (mg/L)
- .-.- Nitrate as N Remediation Goal (10 mg/L)

CLIENT Monsanto Company

DRAWN FV

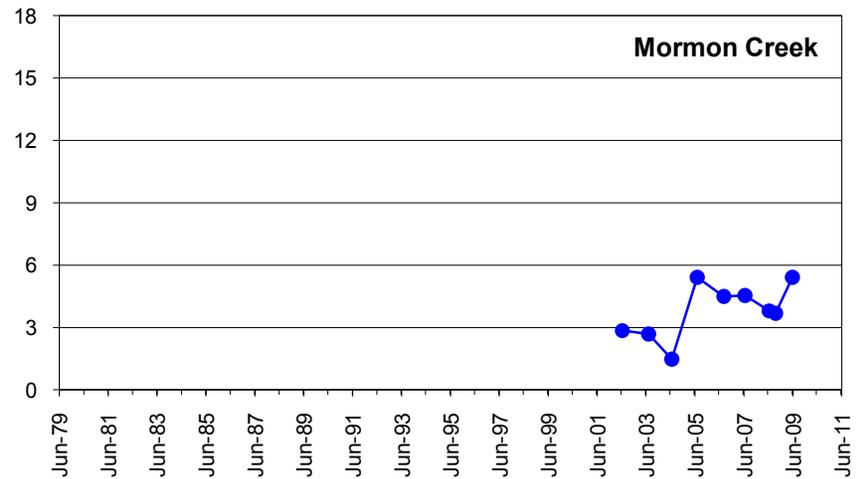
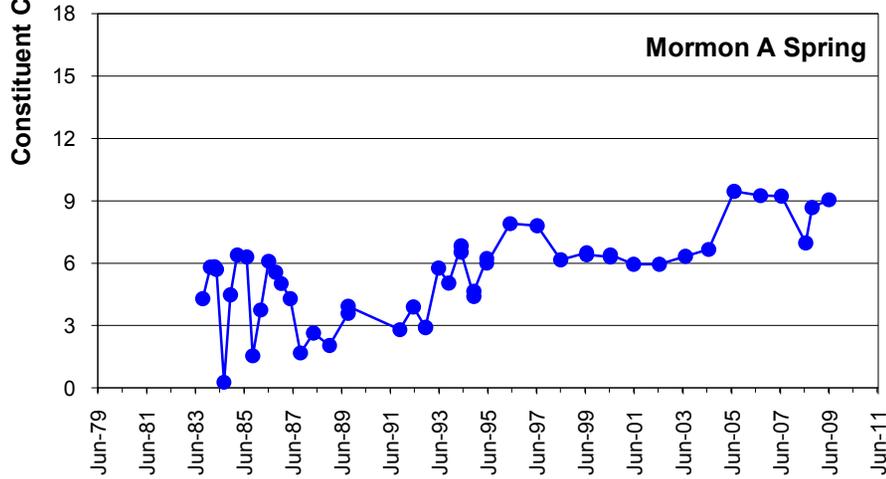
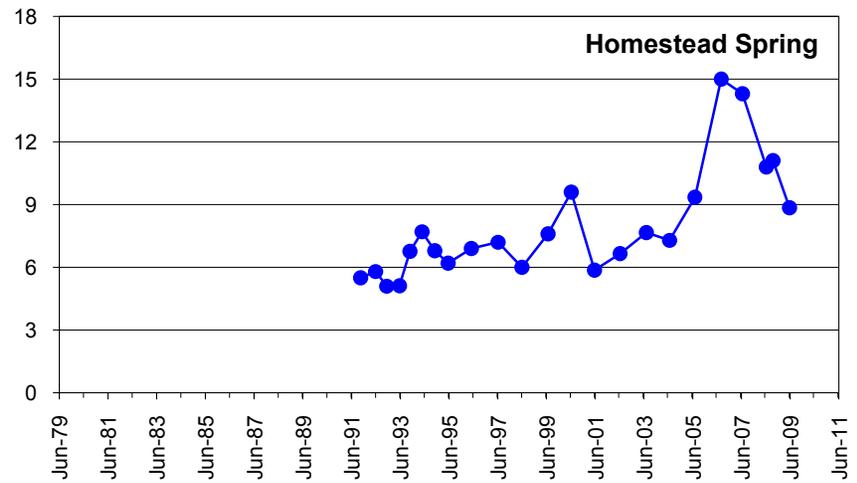
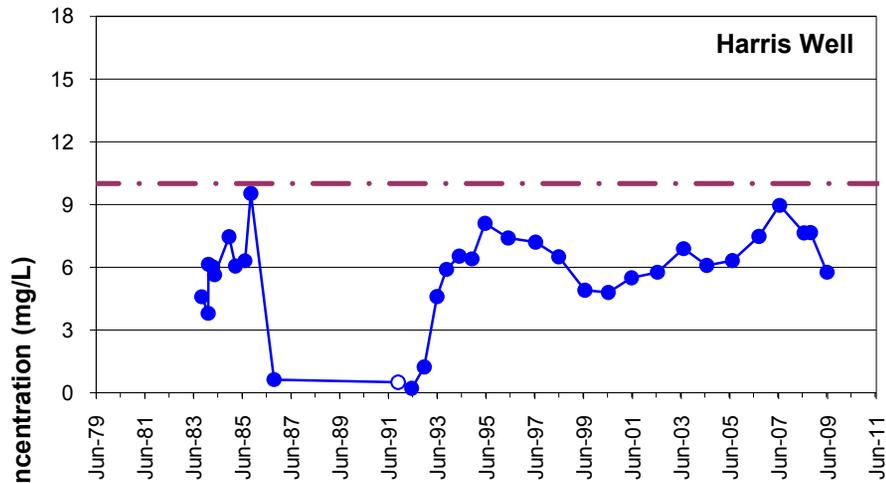
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



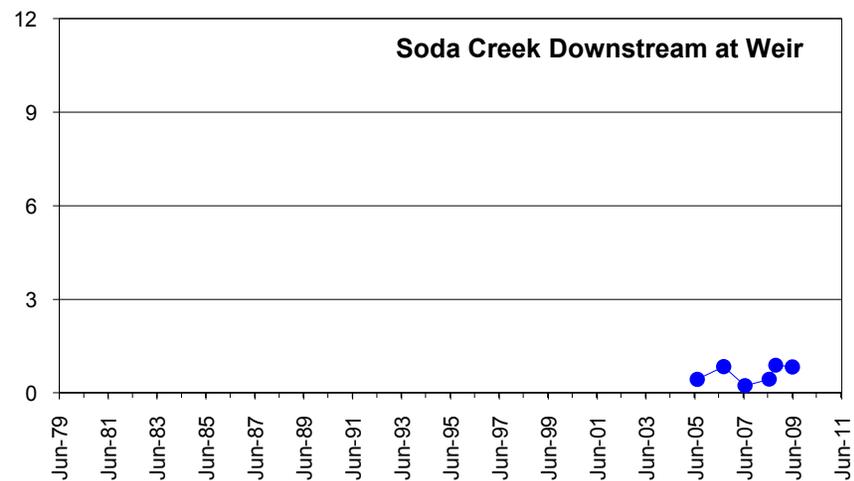
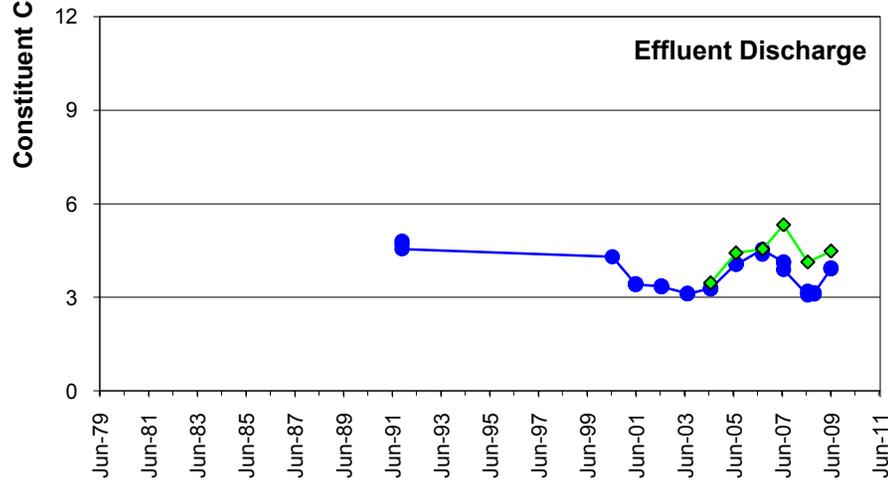
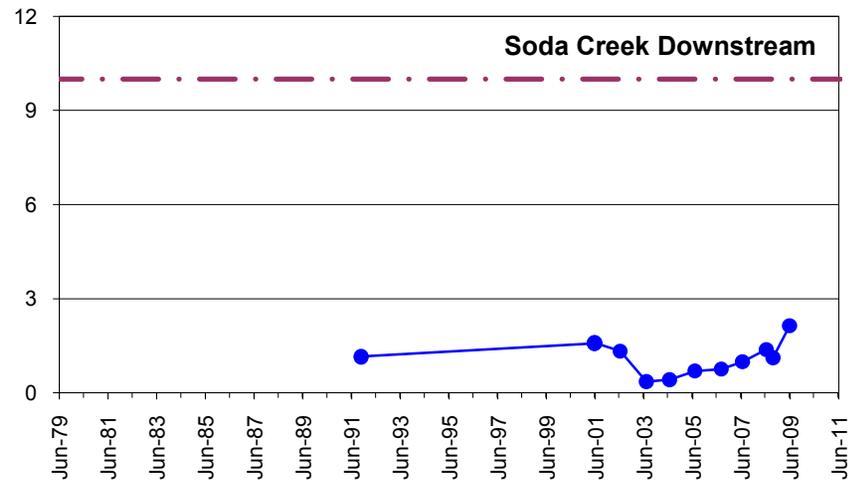
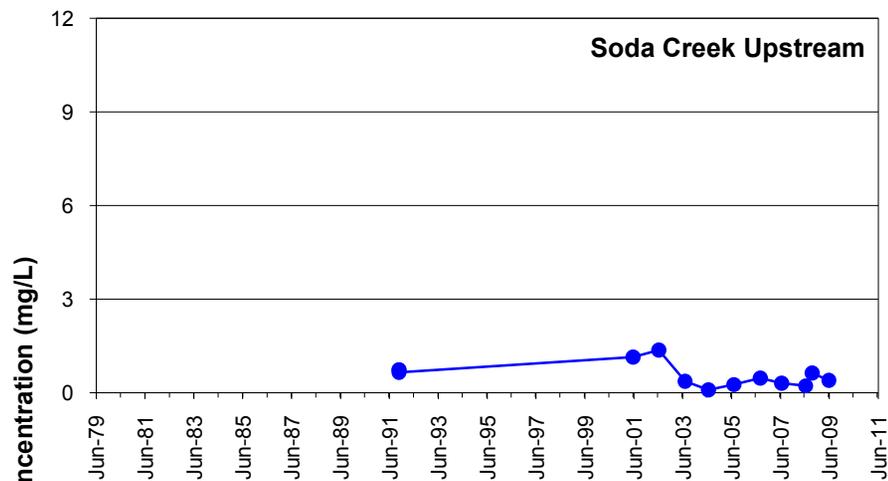
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE		Nitrate in Harris Well and Springs South of Plant		FIGURE D-4	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - · - Nitrate as N Remediation Goal (10 mg/L) 		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



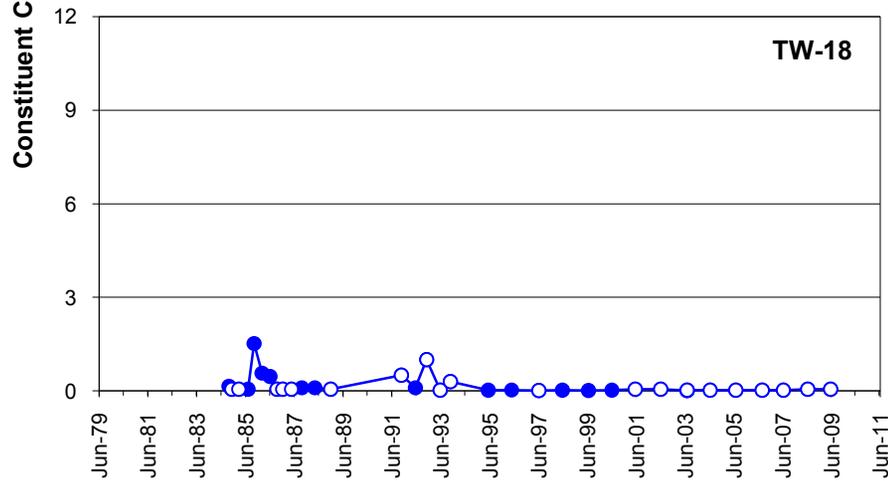
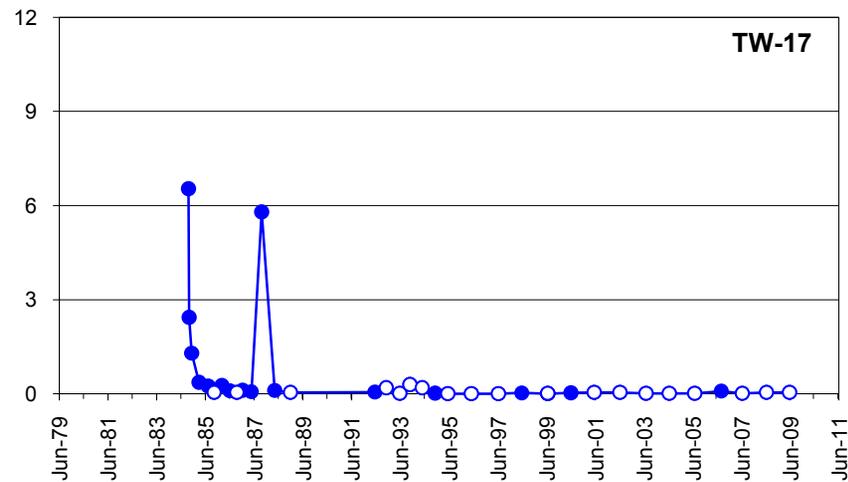
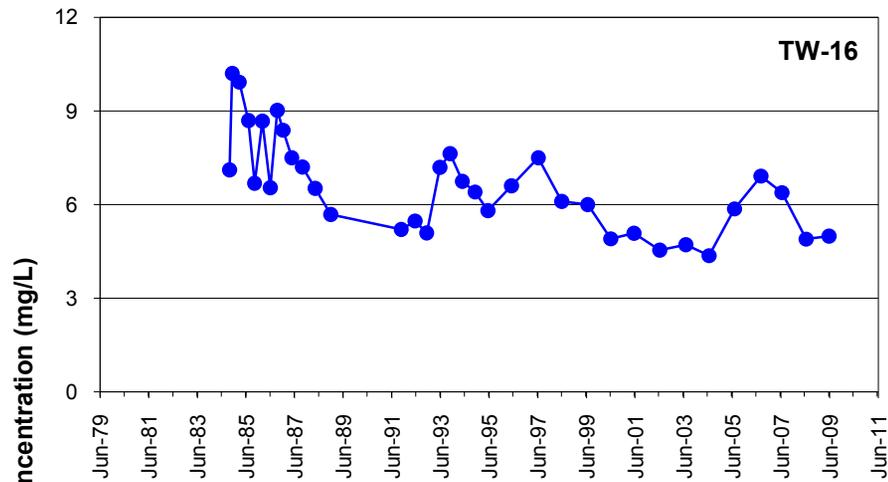
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE		Nitrate in Soda Creek and Effluent Discharge		FIGURE D-5	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) - · - Nitrate as N Remediation Goal (10 mg/L) ◆ Pond Inlet 		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

Nitrate in NW Pond Wells

FIGURE D-6

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

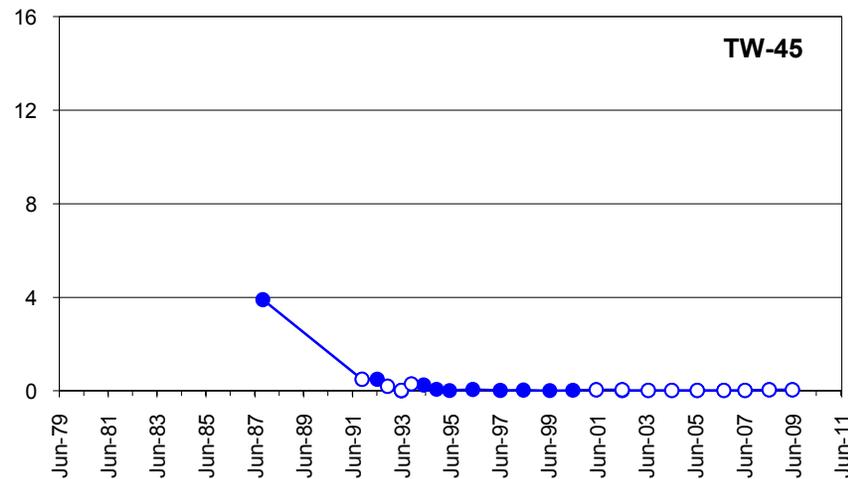
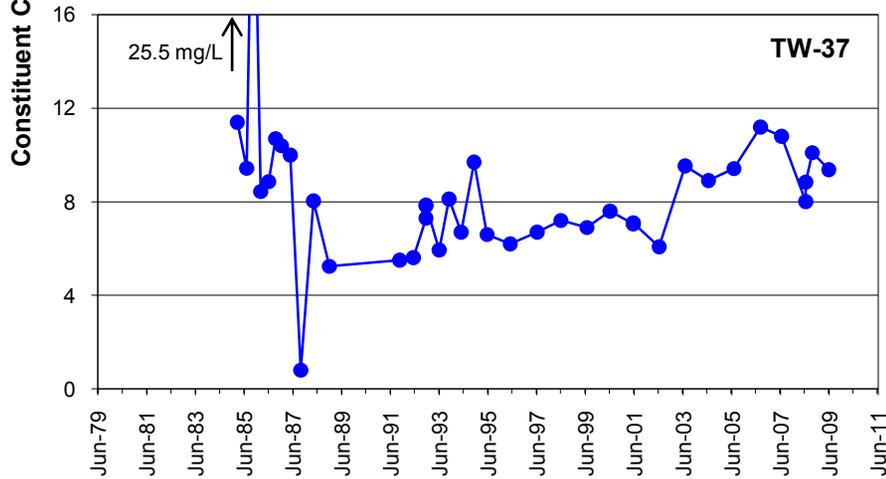
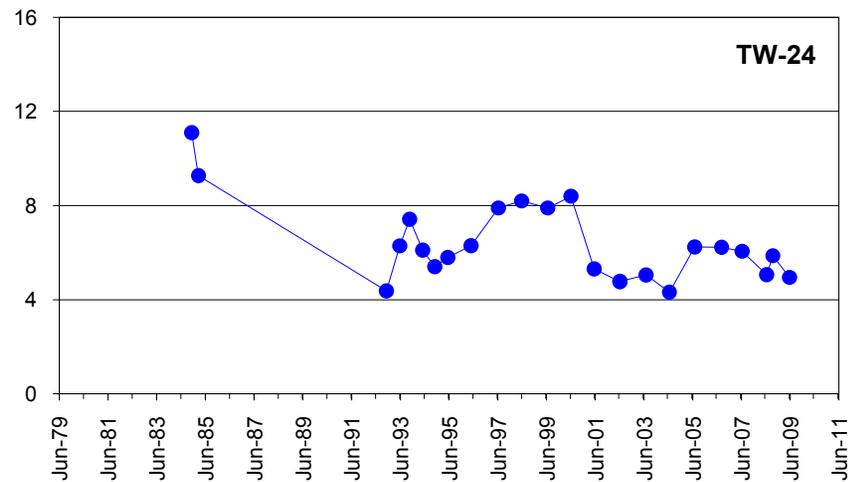
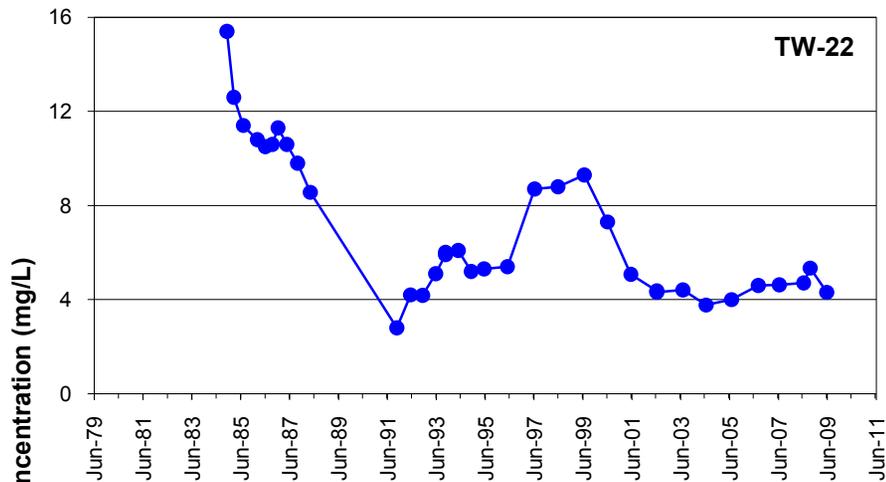
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



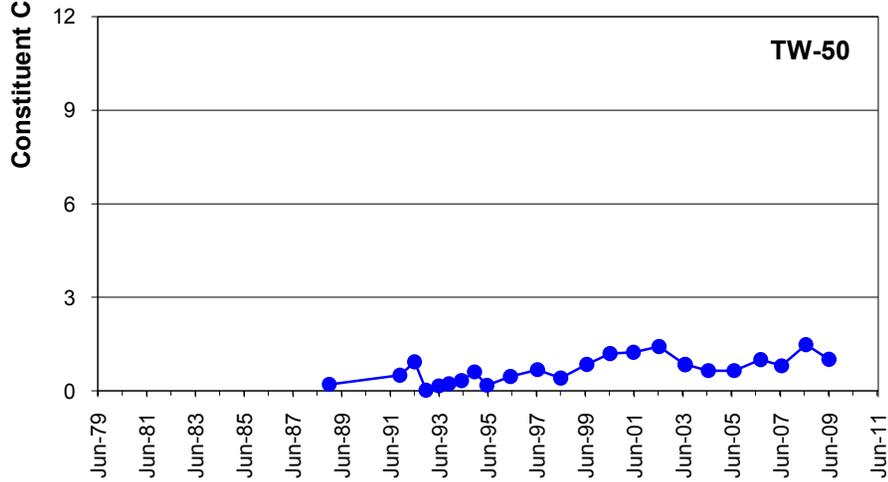
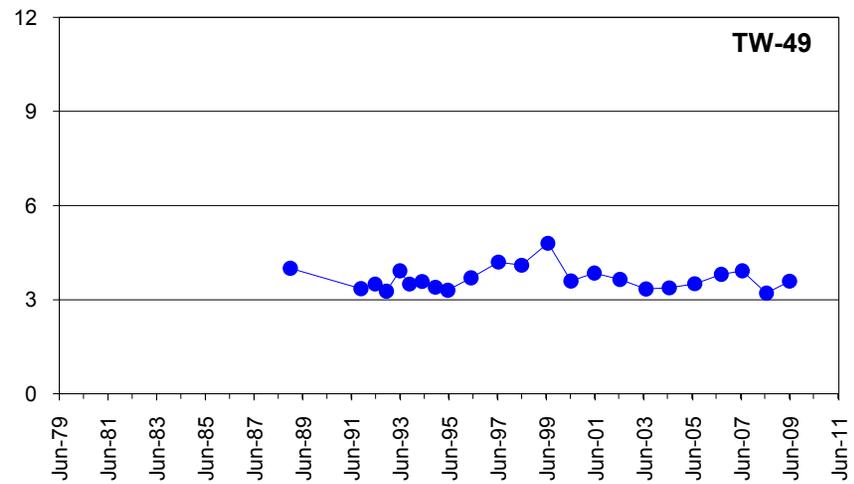
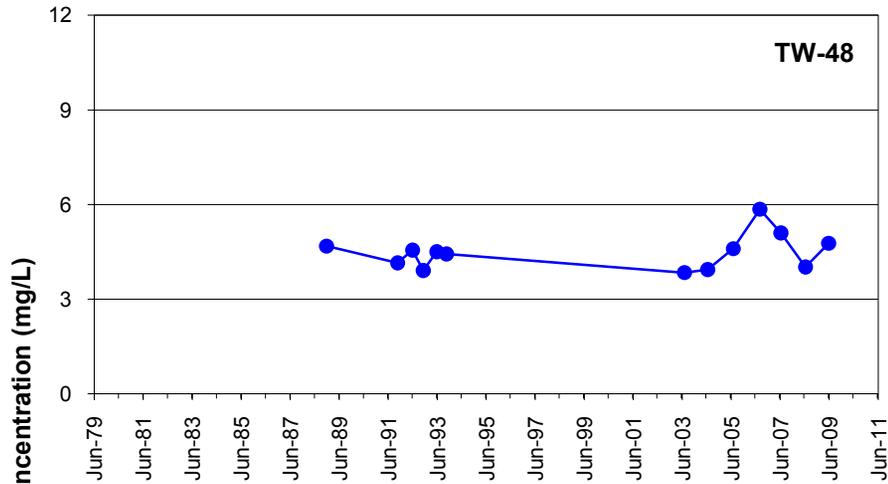
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE		Nitrate in Old Underflow Solids Pond Area Wells		FIGURE D-7	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



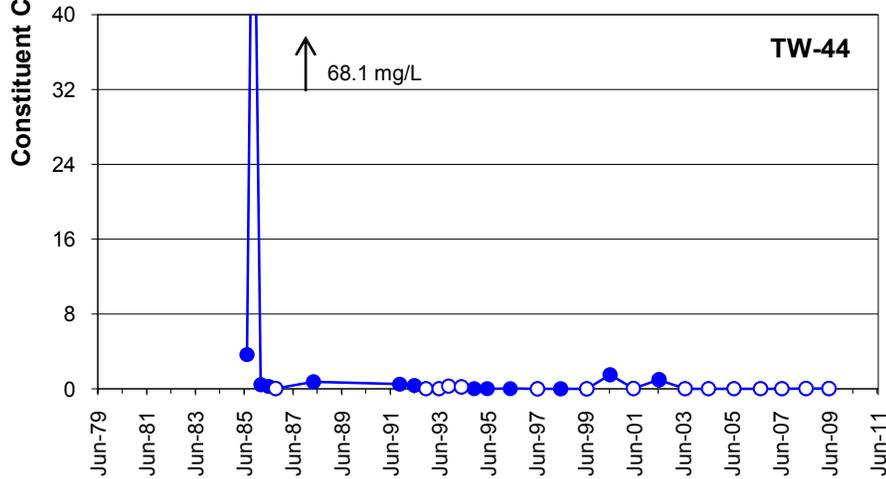
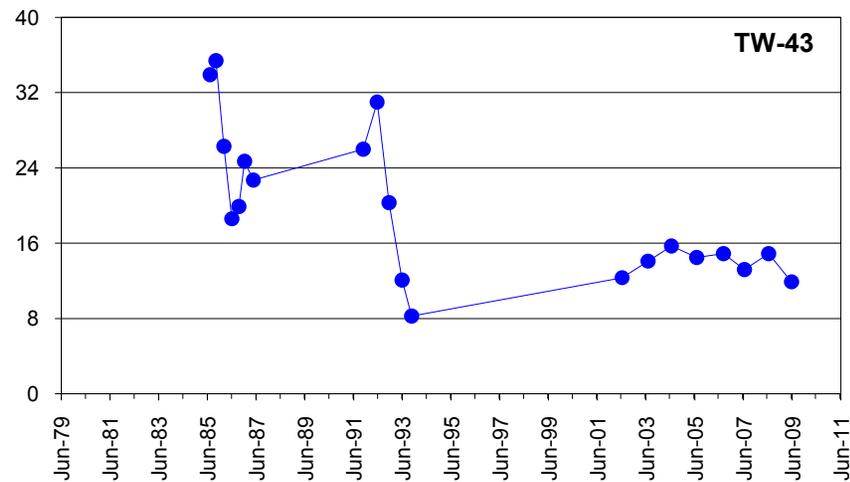
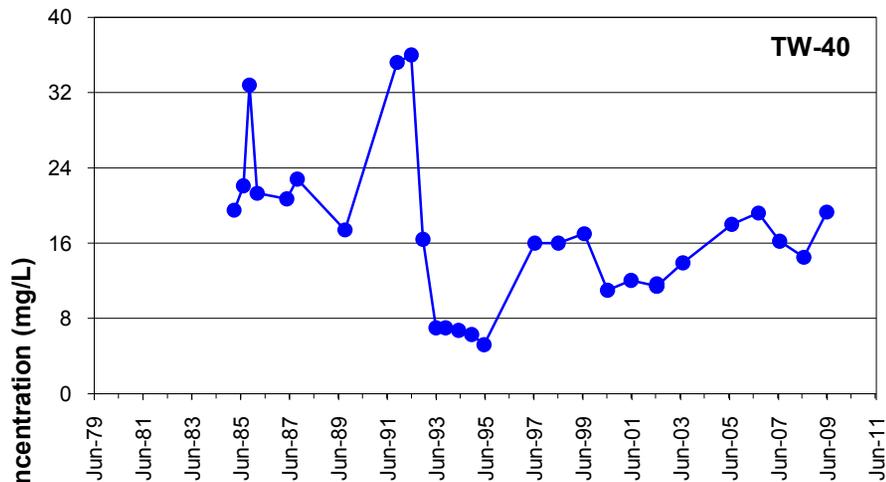
Sample Date

FILE NAME App D Nitrate Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE		Nitrate in Underflow Solids Piles Area Wells		FIGURE D-8	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

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Remediation goals shown for point of compliance locations only



TITLE

Nitrate in Hydroclarifier Area Wells

FIGURE D-9

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

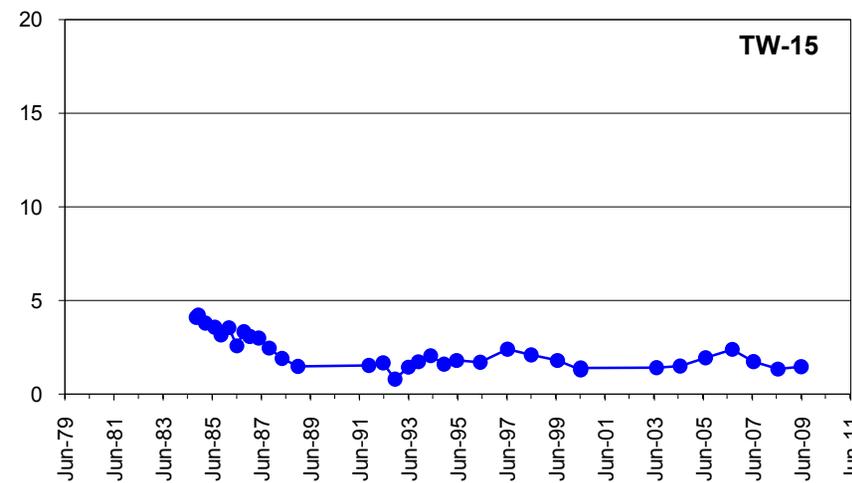
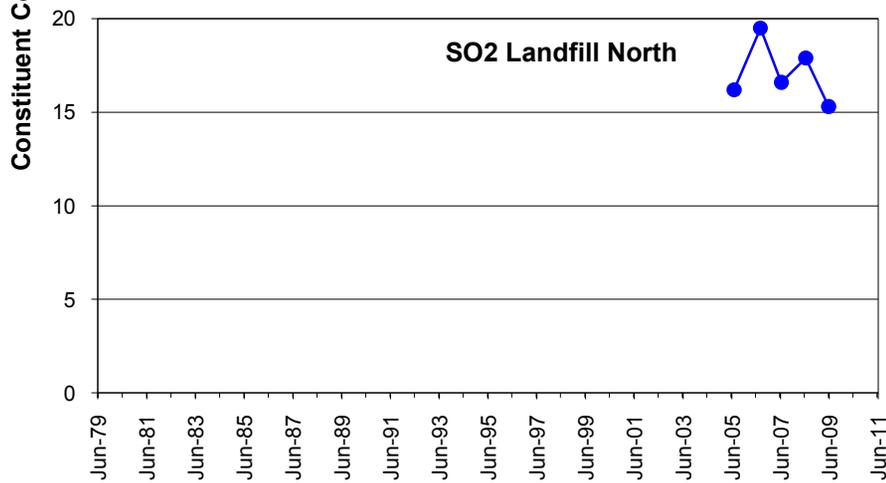
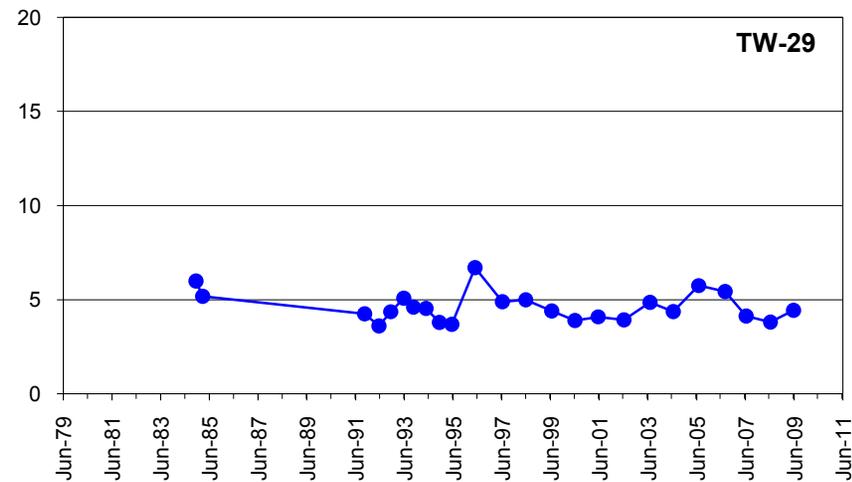
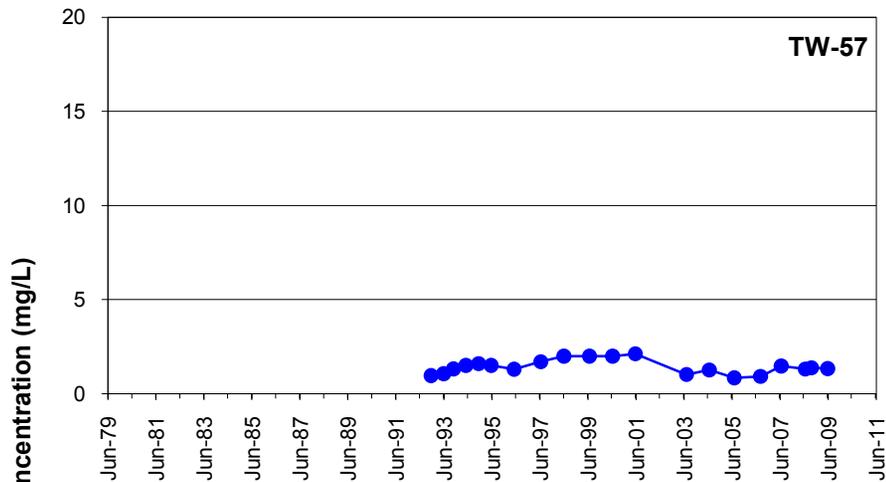
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

Nitrate in Background Wells

FIGURE D-10

● Constituent Concentration (mg/L) ○ Non-detects

CLIENT Monsanto Company

DRAWN FV

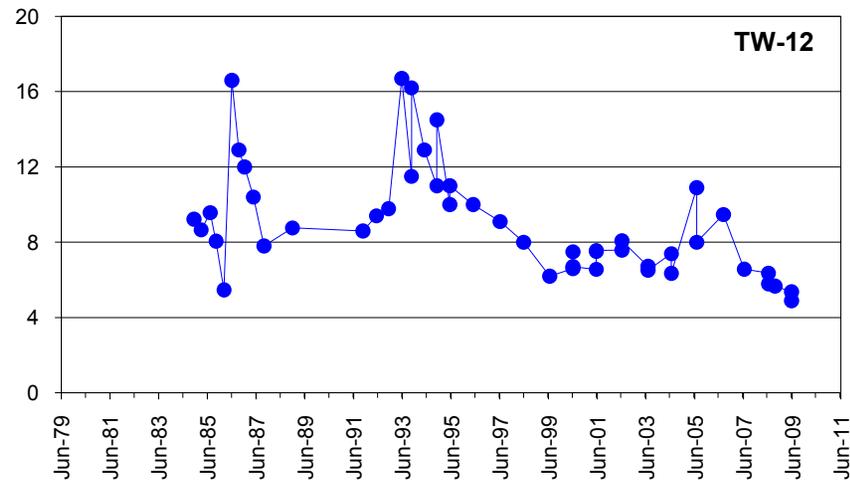
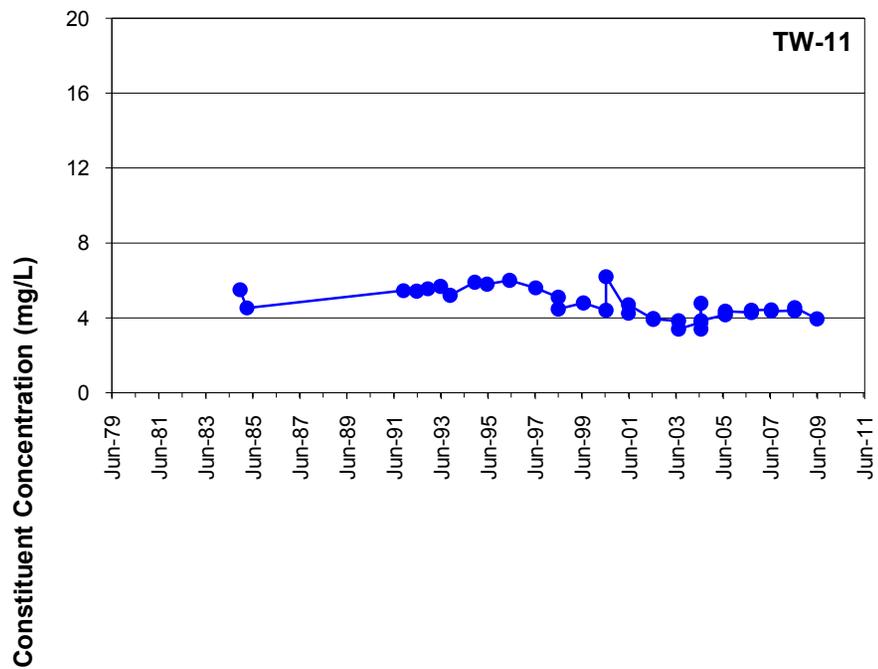
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



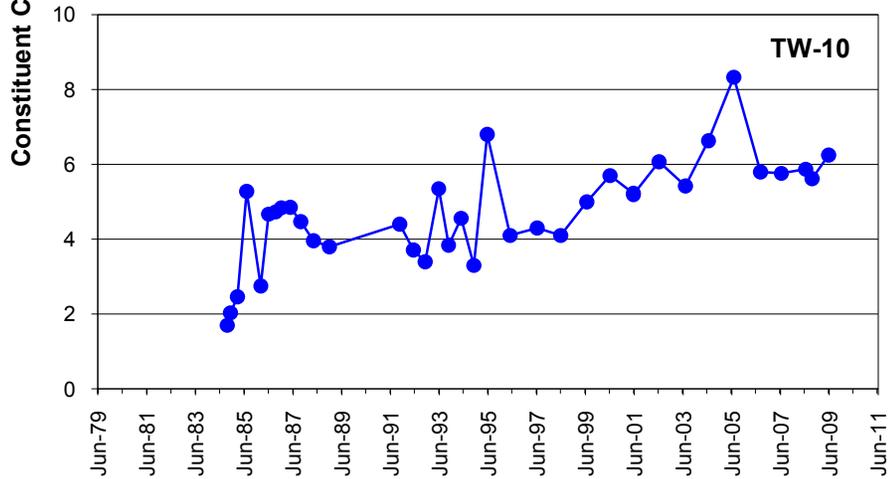
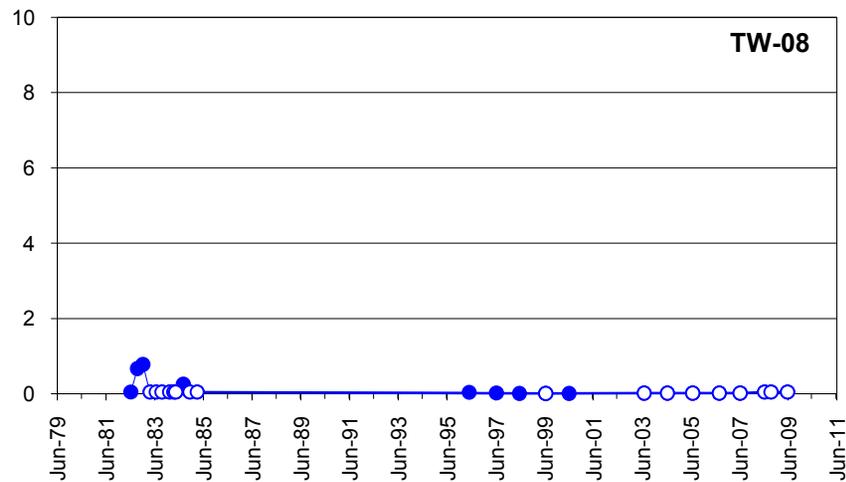
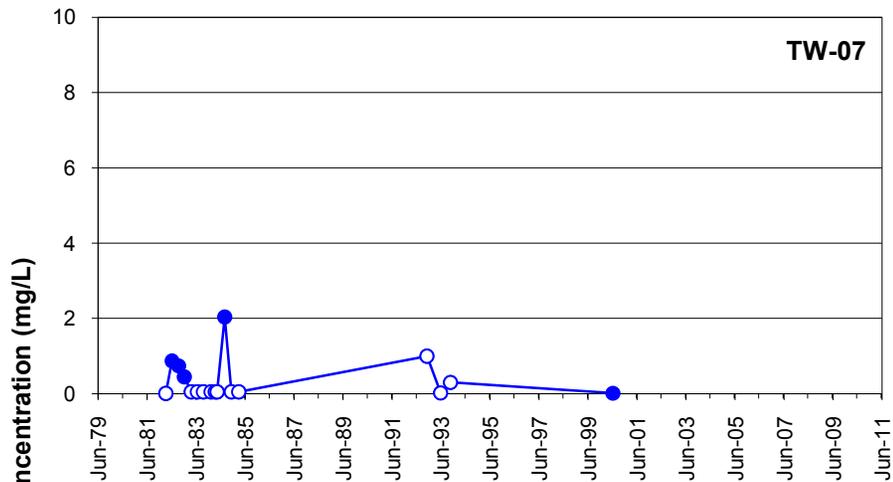
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE		Nitrate in Southeast Corner Wells		FIGURE D-11	
Constituent Concentration (mg/L)		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

Nitrate in Southwest Corner Wells

FIGURE D-12

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

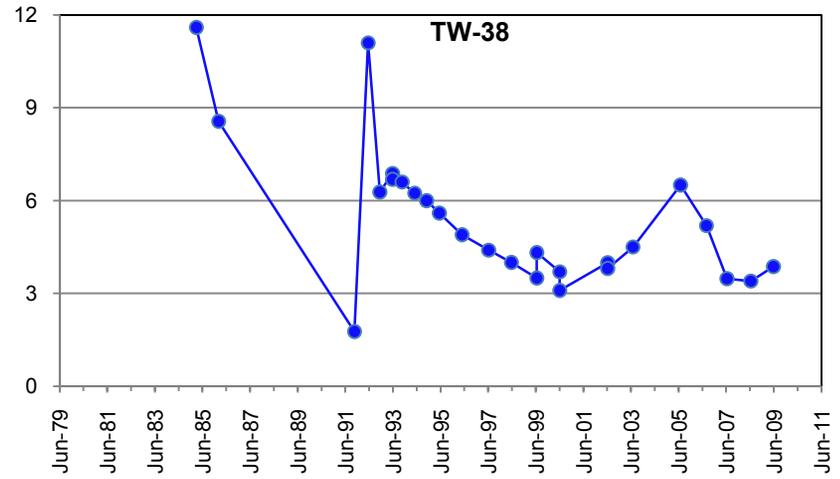
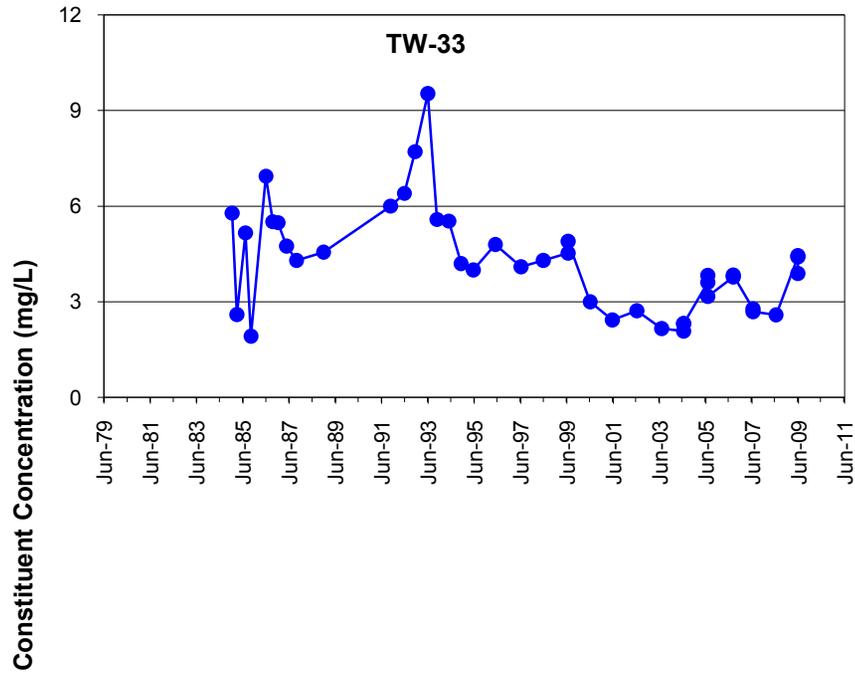
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

Nitrate in East Area Wells

FIGURE D-13

● Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

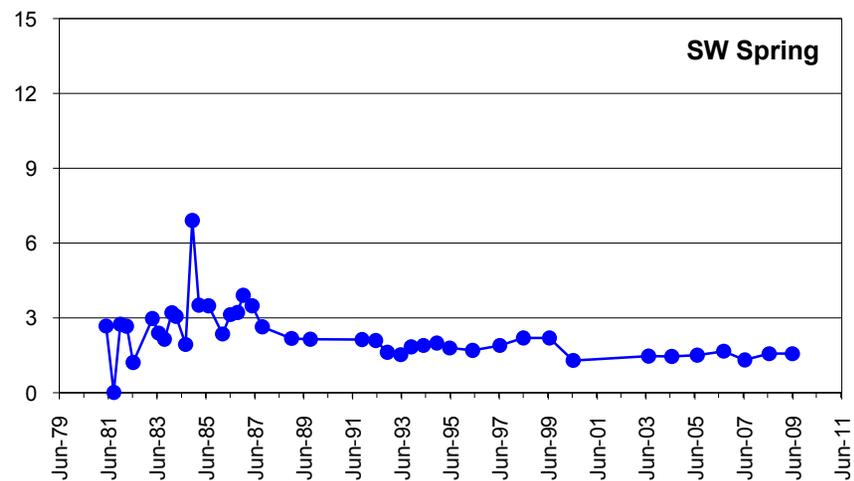
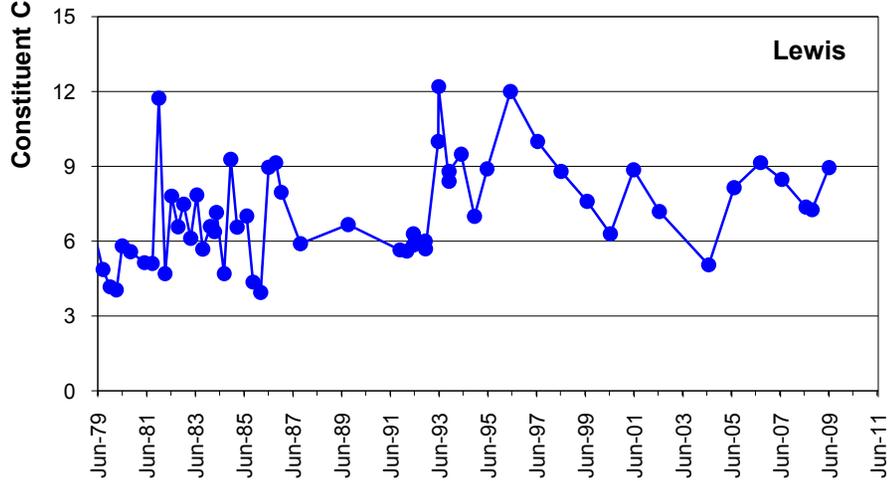
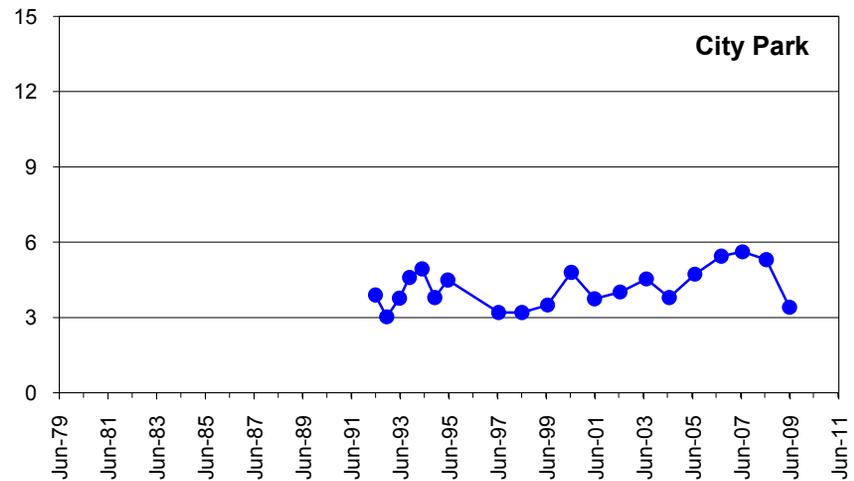
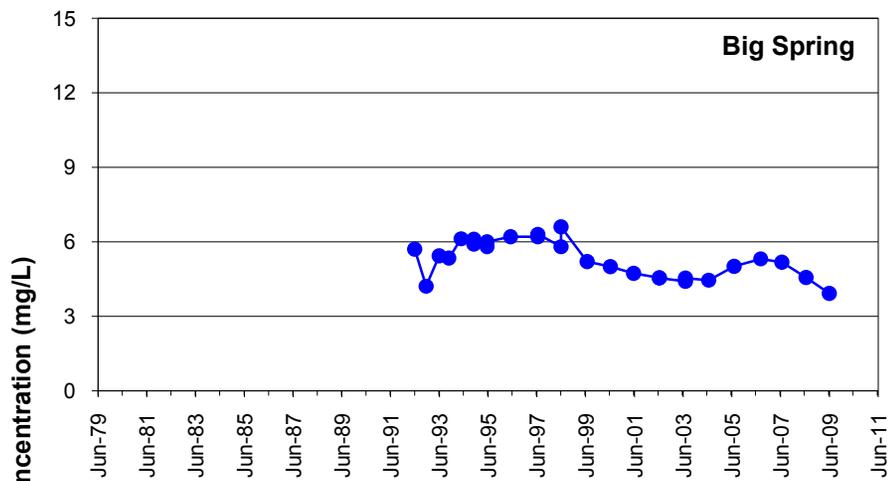
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



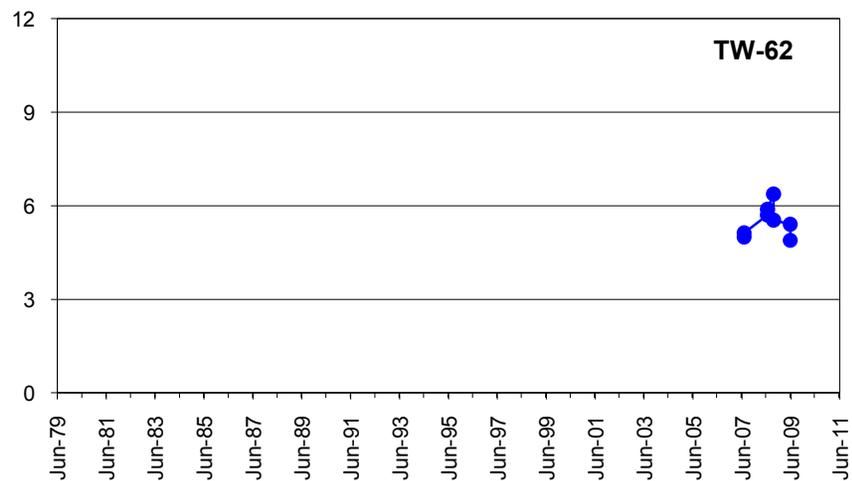
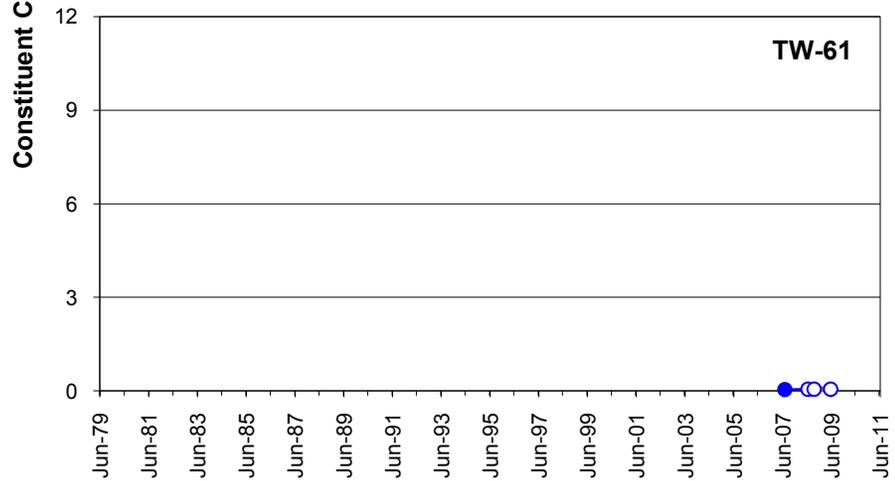
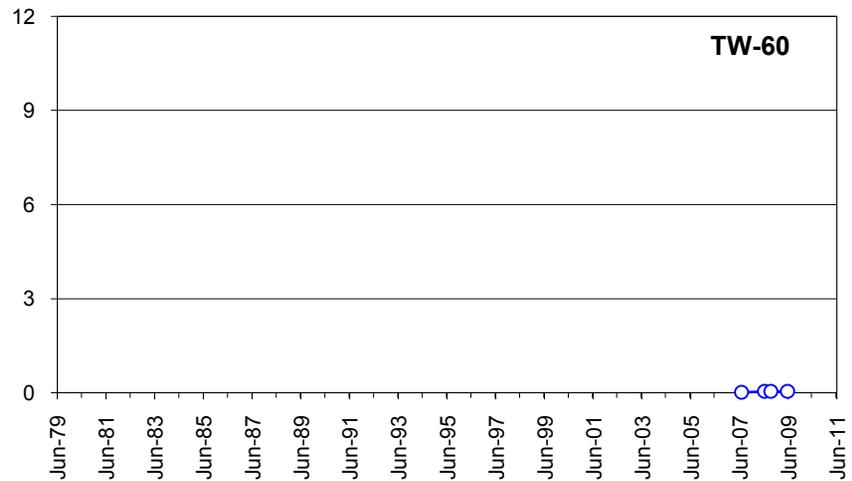
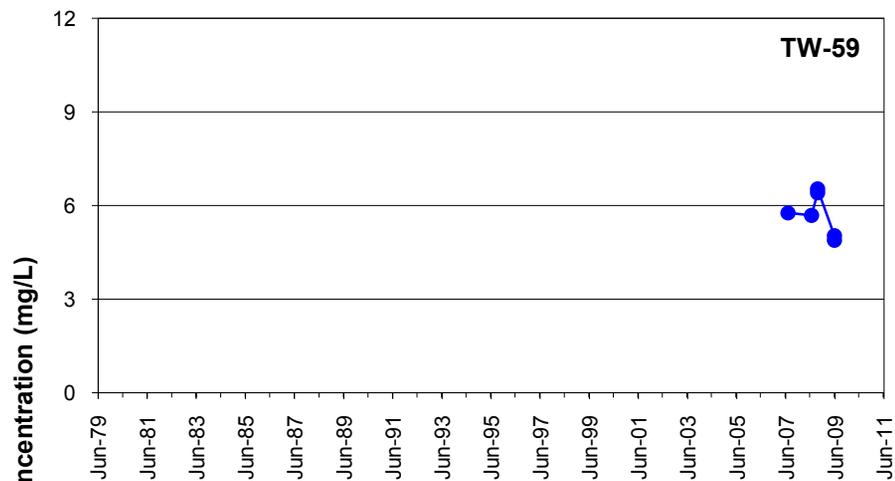
Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE		Nitrate in Offsite Wells and Springs		FIGURE D-14	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

FILE NAME App D Nitrate Charts 2009.xls



TITLE

Nitrate in 2007 Monitoring Wells

FIGURE D-15

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

PROJECT Monsanto Groundwater Monitoring

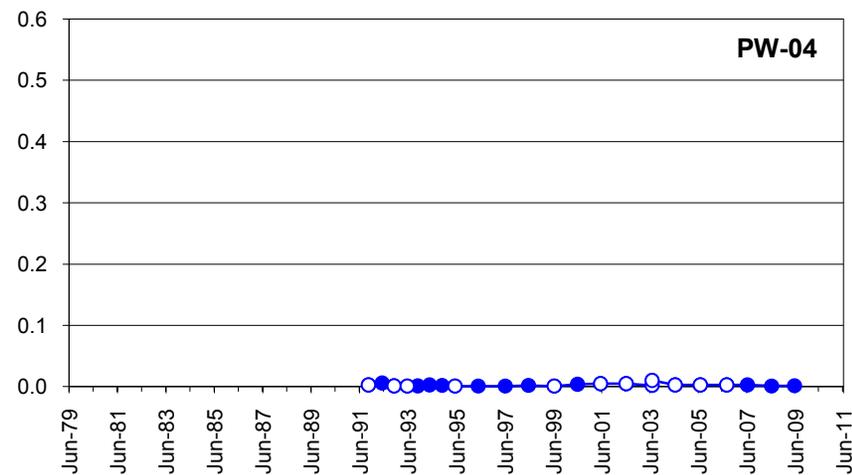
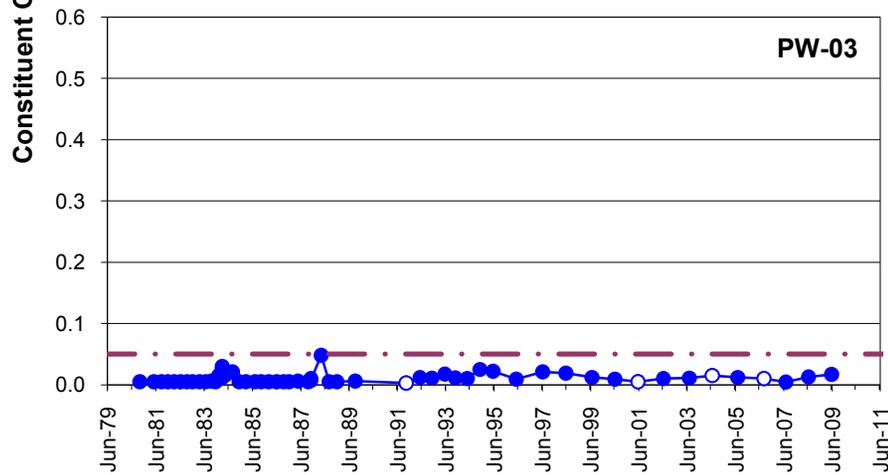
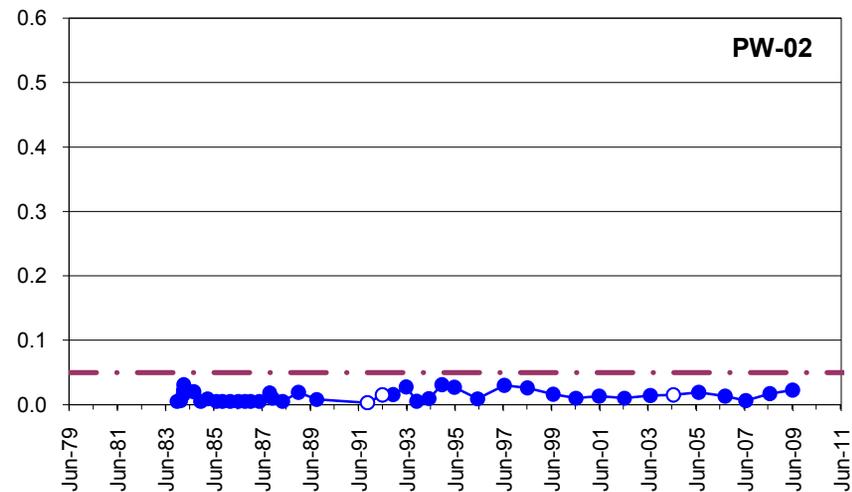
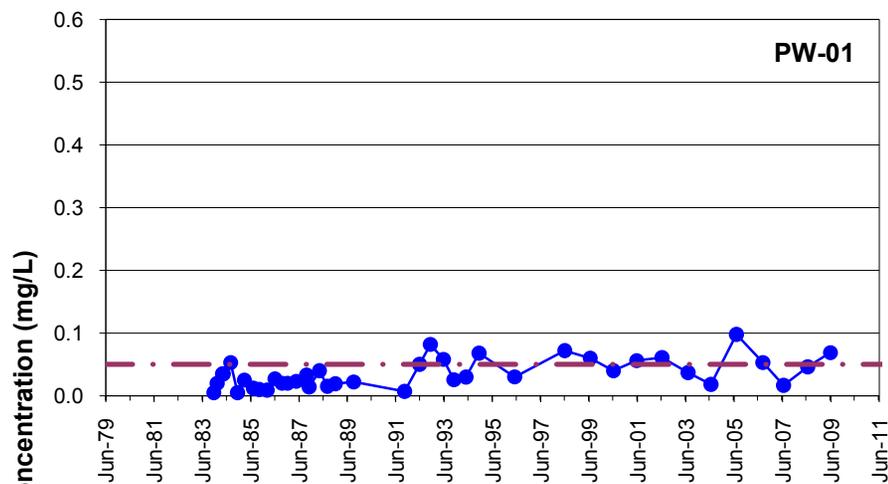
CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

APPENDIX E
TIME-HISTORY GRAPHS FOR SELENIUM



Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls

Selenium in Production Wells

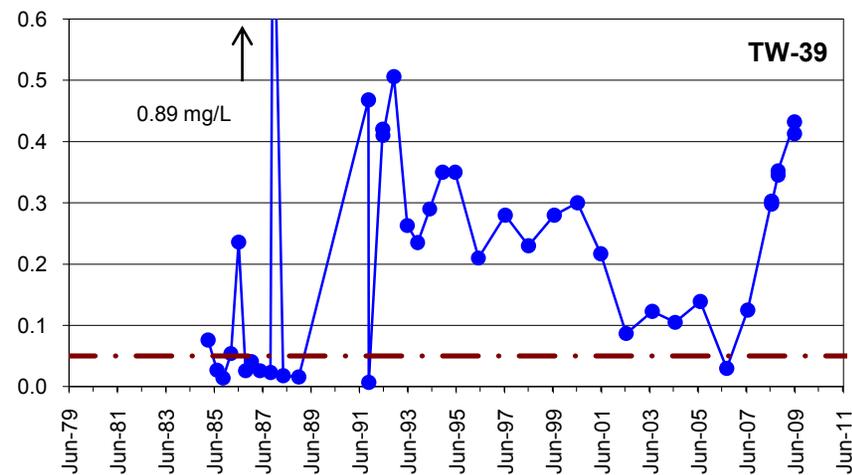
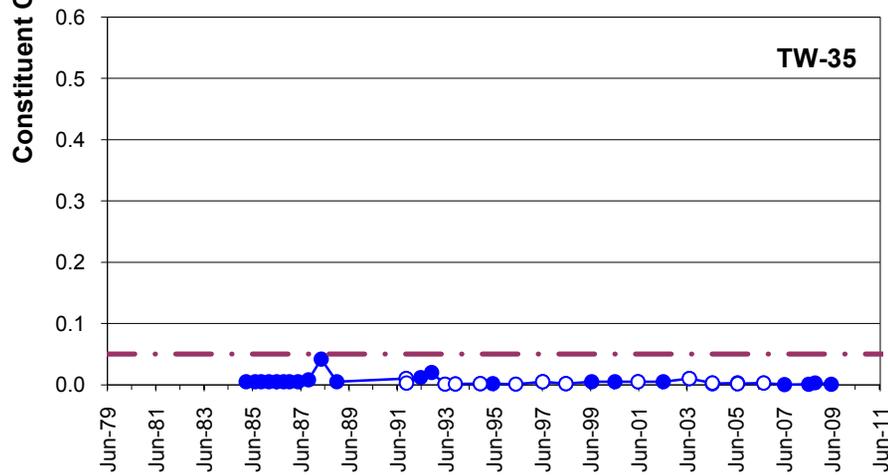
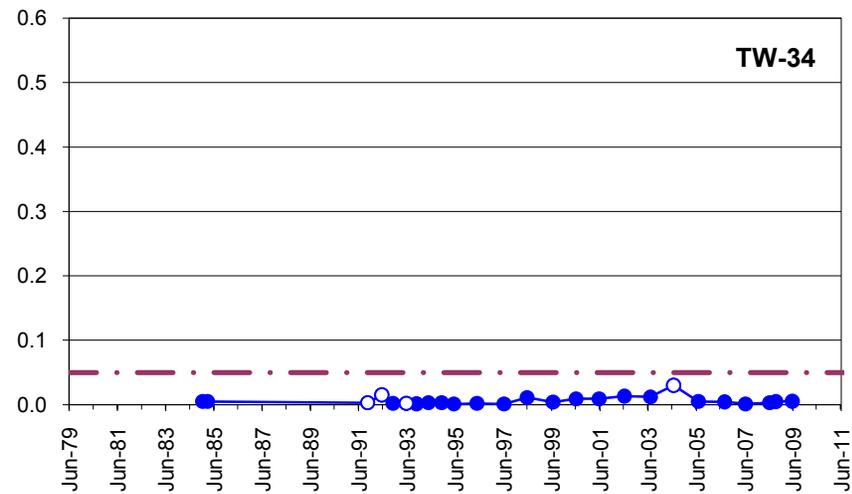
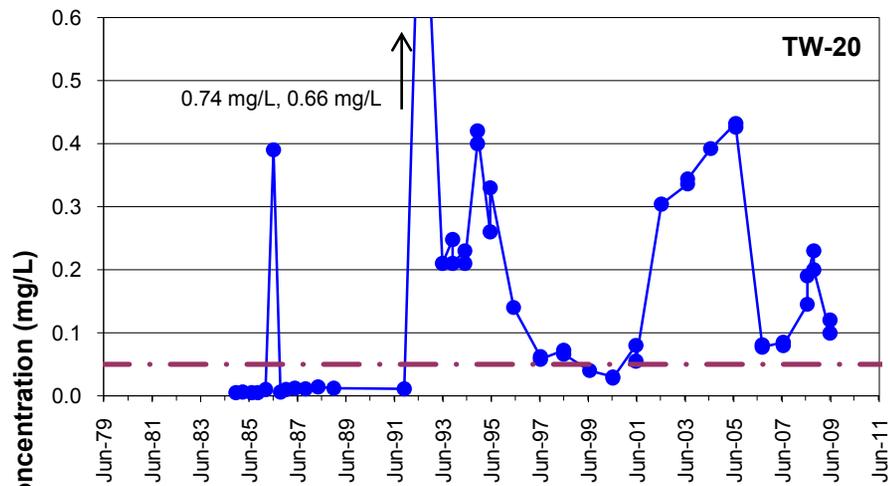
FIGURE E-1



<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-detect - · - Selenium Remediation Goal (0.05 mg/L)
--

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



Sample Date

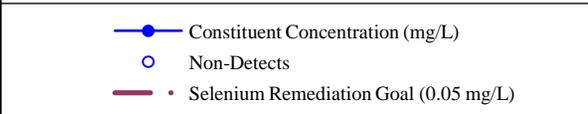
Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



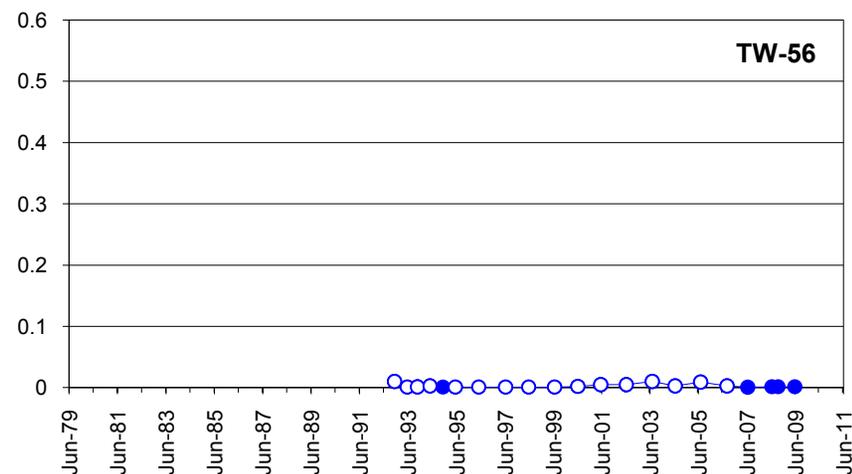
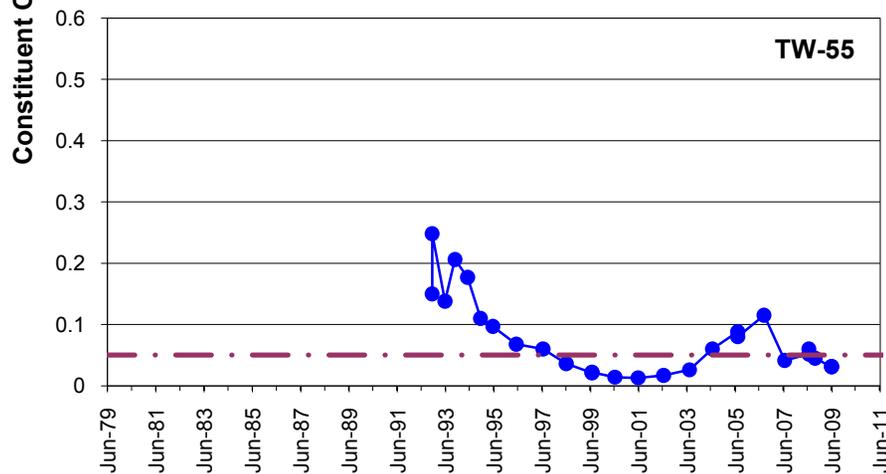
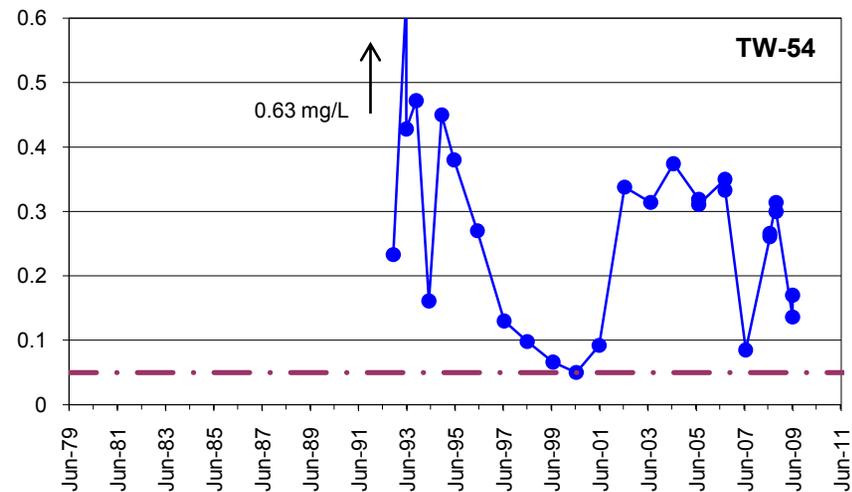
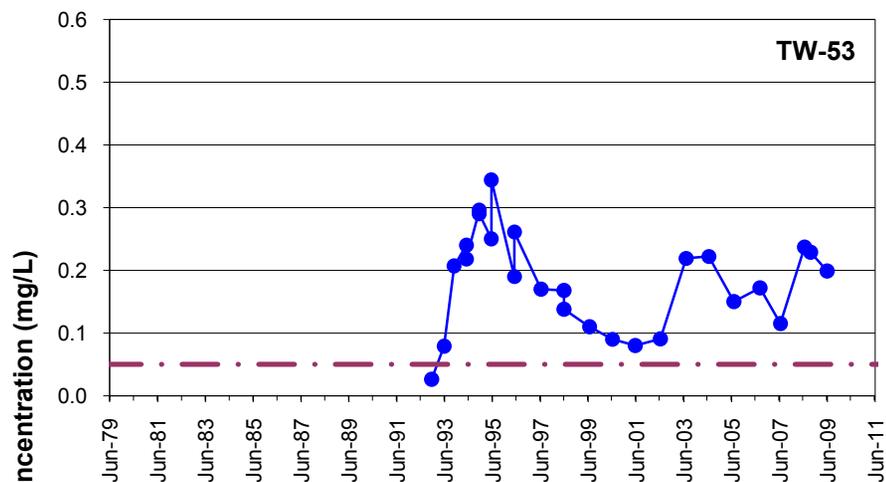
TITLE **Selenium in South Fenceline Wells**

FIGURE E-2



CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



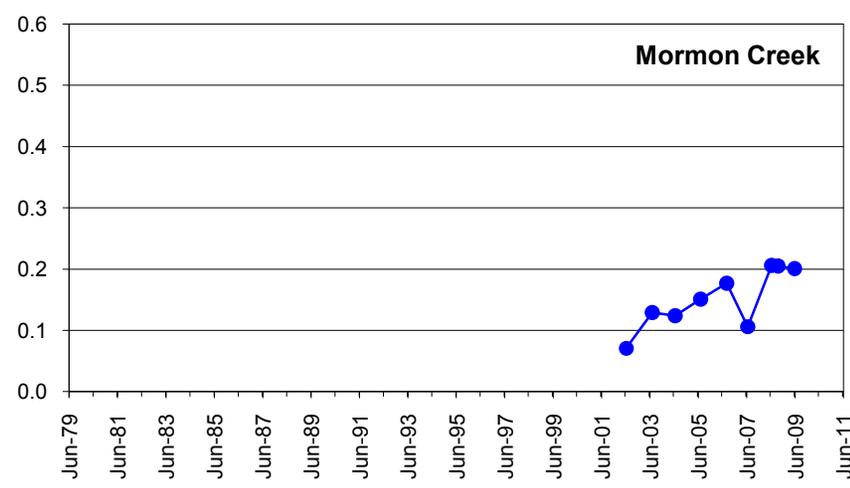
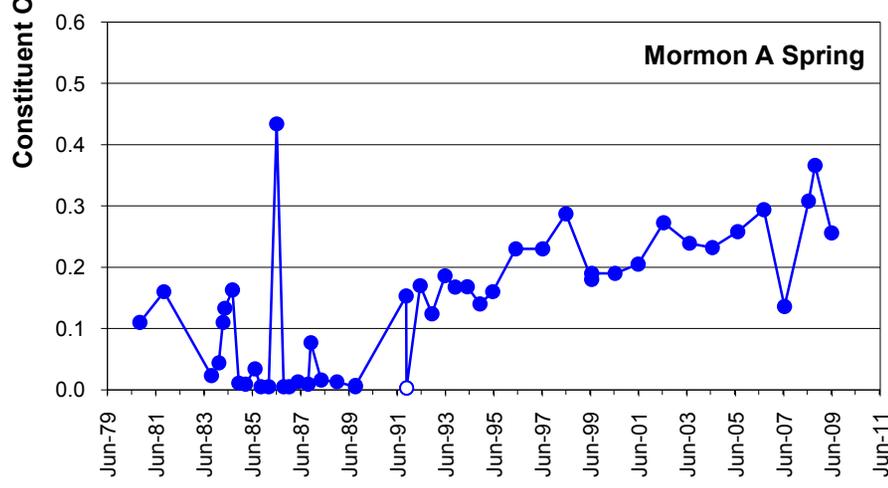
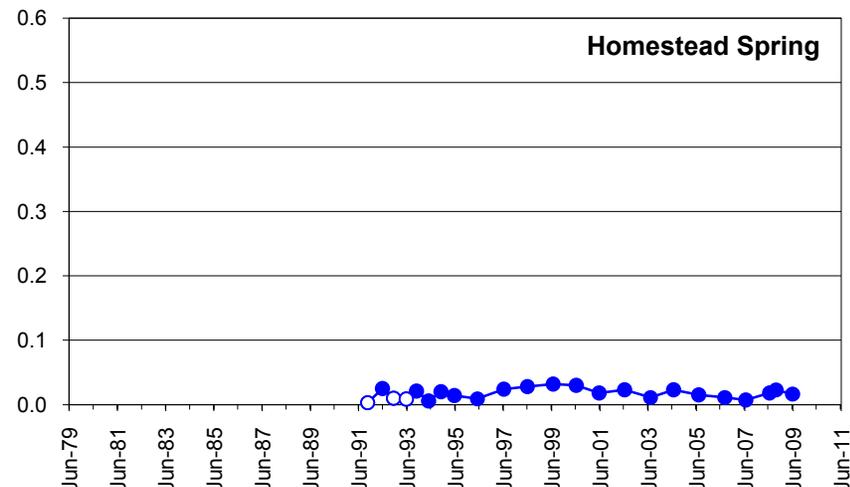
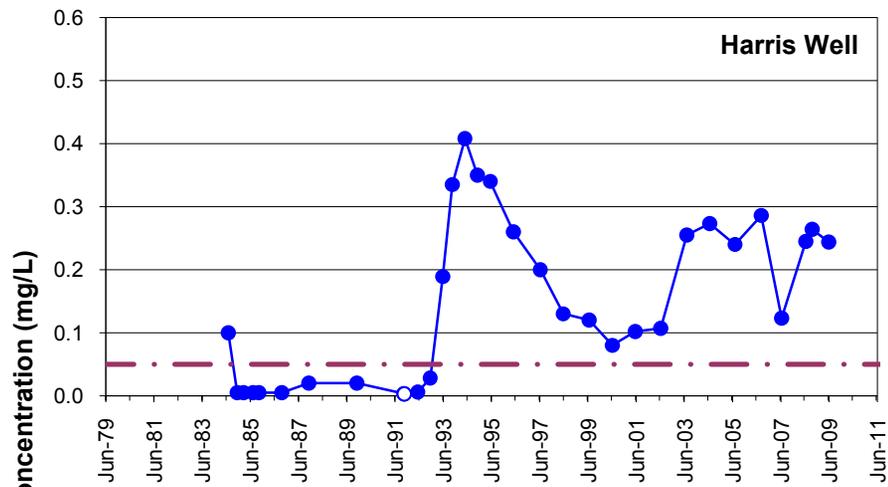
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



FILE NAME	TITLE		FIGURE E-3	
	Selenium in Southern Boundary Wells		CLIENT	Monsanto Company
	<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects —•— Selenium Remediation Goal (0.05 mg/L) 		PROJECT	Monsanto Groundwater Monitoring
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09
			DRAWN	FV
			CHECKED	MPK
			REVIEWED	DB



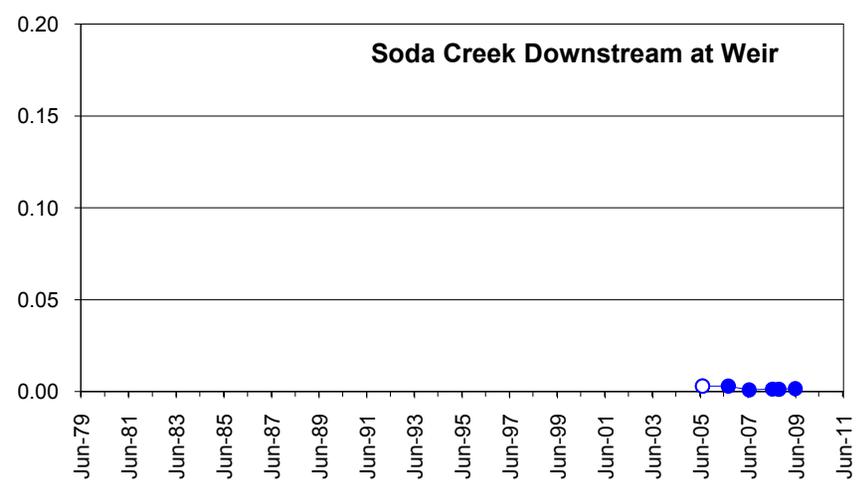
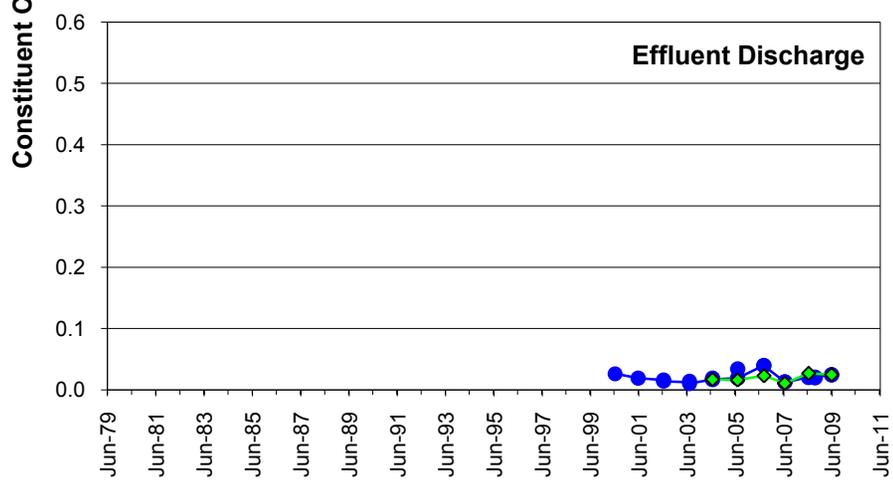
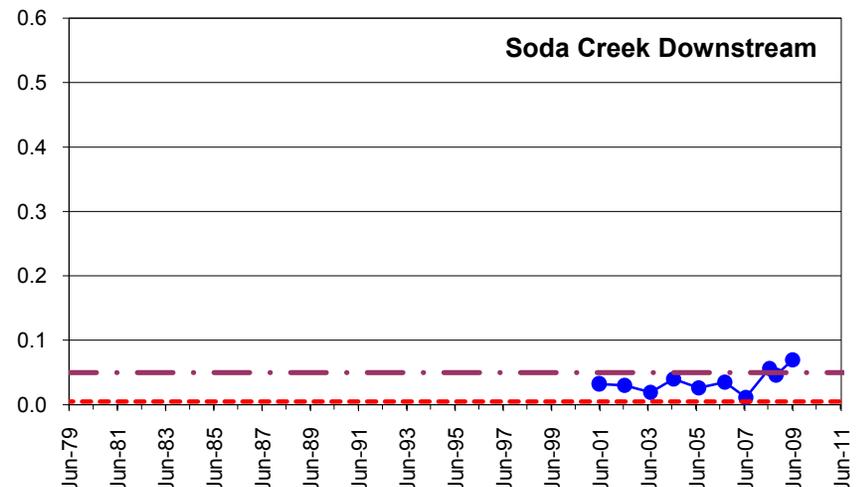
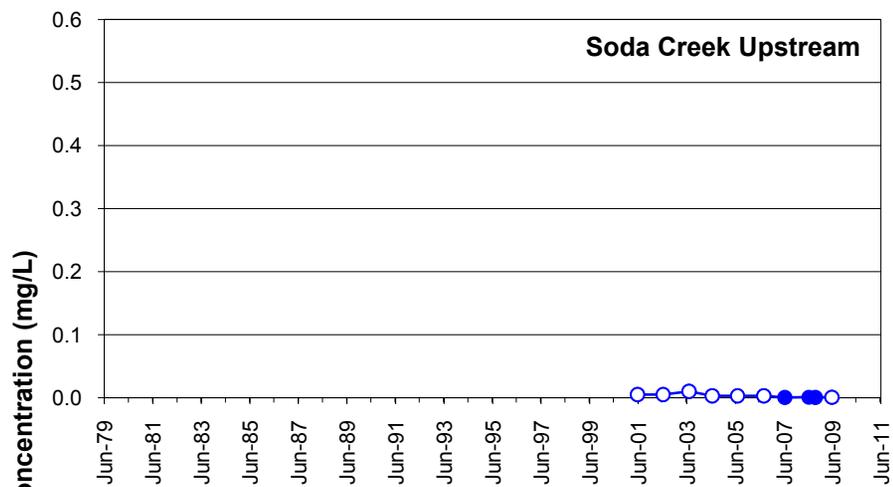
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



TITLE		Selenium in Harris Well and Springs South of Plant		FIGURE E-4	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects - · - Selenium Remediation Goal (0.05 mg/L) 		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB



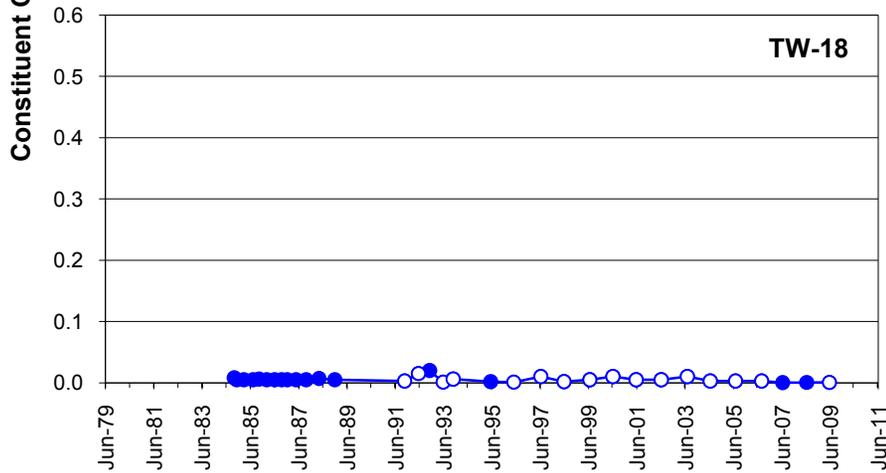
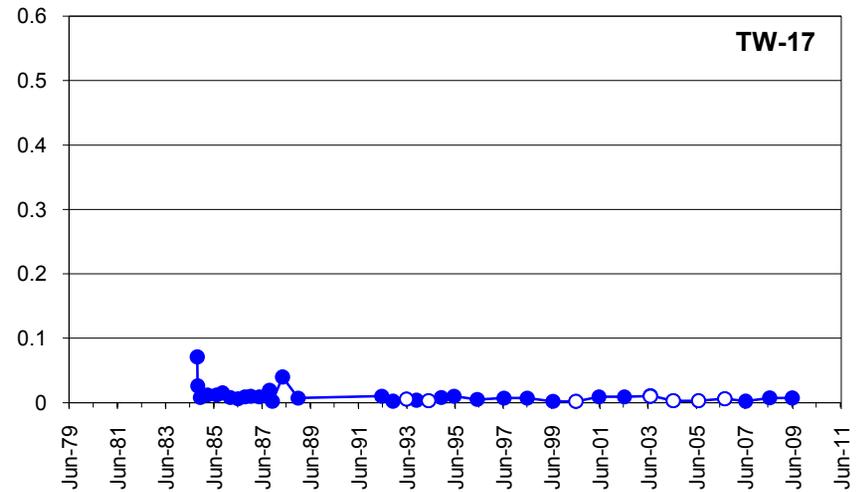
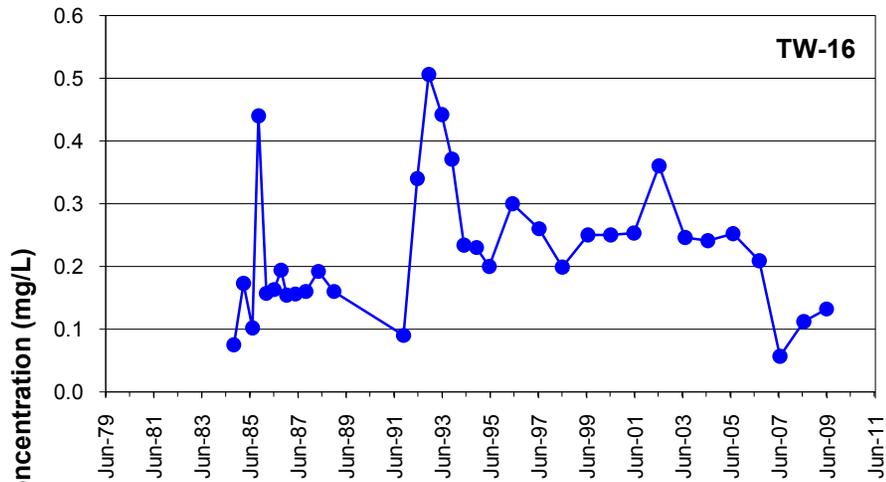
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



TITLE Selenium in Soda Creek and Effluent Discharge		FIGURE E-5	
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects ◆ Pond Inlet - · - Selenium Remediation Goal (0.05 mg/L) - - - Chronic Selenium Aquatic Standard (0.005 mg/L) 		CLIENT Monsanto Company	DRAWN FV
		PROJECT Monsanto Groundwater Monitoring	CHECKED MPK
PROJECT NO. 913-1101.605A	DATE 19-Oct-09	REVIEWED DB	



Sample Date

App E Selenium Charts 2009.xls

Remediation goals shown for point of compliance locations only

Selenium in NW Pond Wells

FIGURE E-6



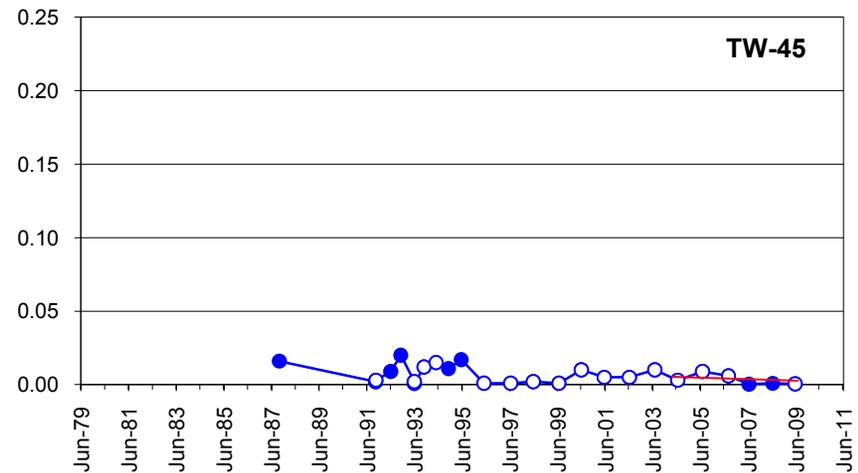
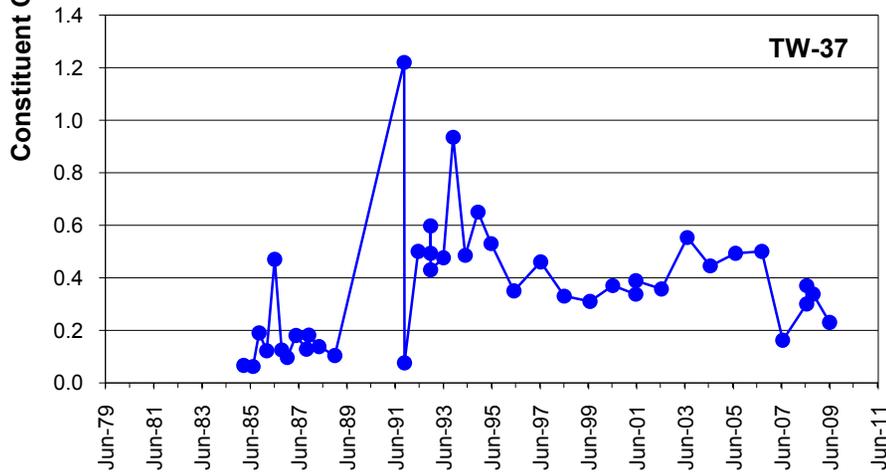
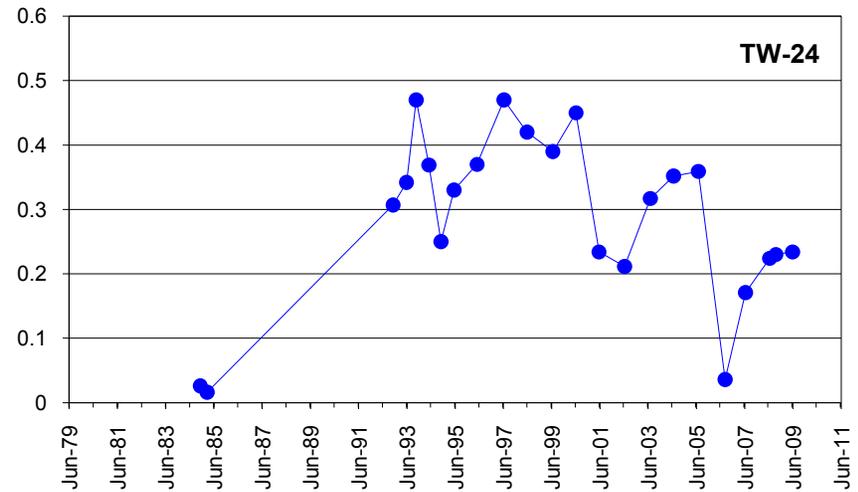
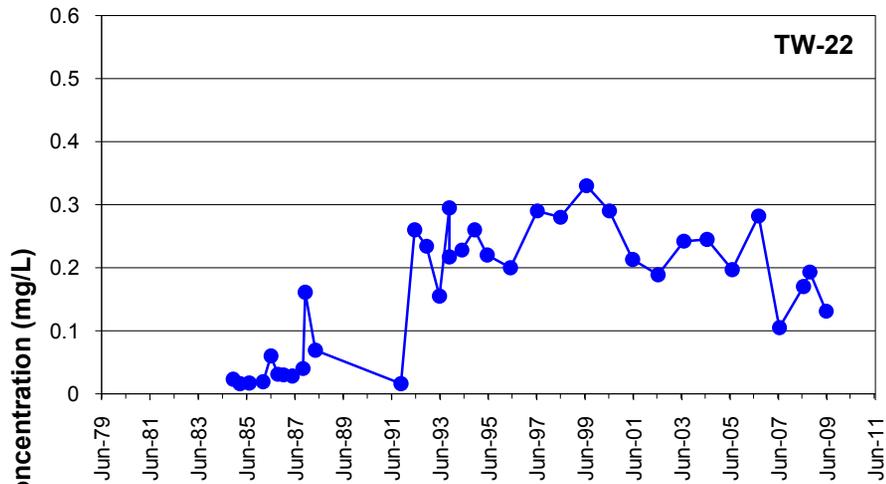
FILE NAME

TITLE

● Constituent Concentration (mg/L)
 ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



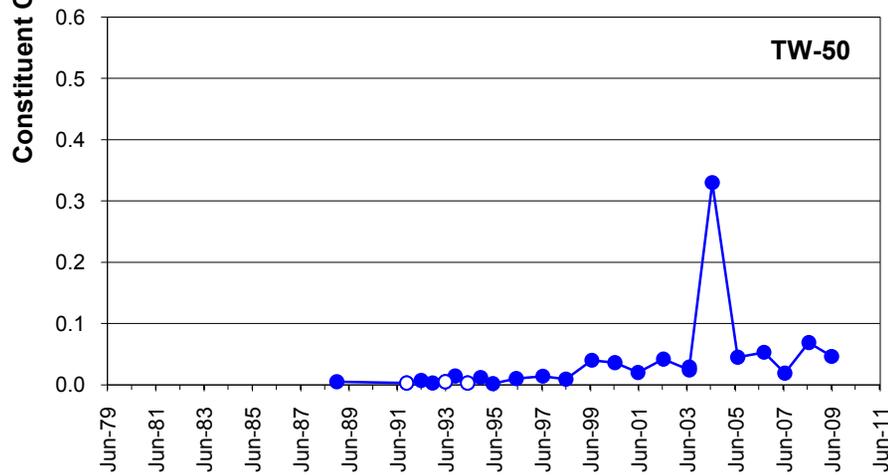
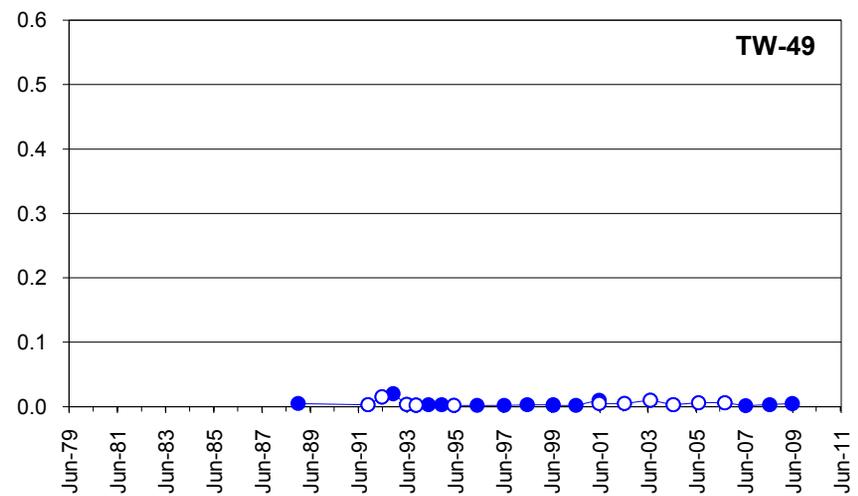
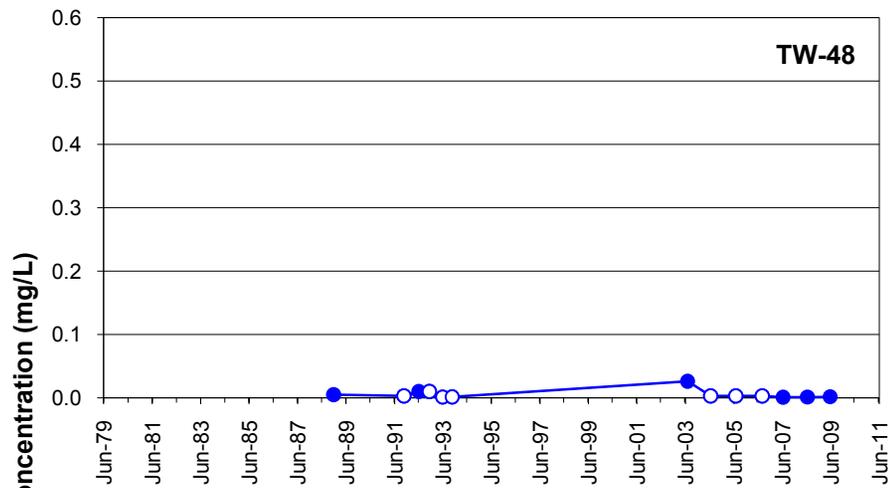
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



FILE NAME	TITLE		FIGURE
	Selenium in Old Underflow Solids Pond Area Wells		E-7
		CLIENT	DRAWN
		Monsanto Company	FV
		PROJECT	CHECKED
		Monsanto Groundwater Monitoring	MPK
		PROJECT NO.	REVIEWED
		913-1101.605A	DB
		DATE	
		19-Oct-09	



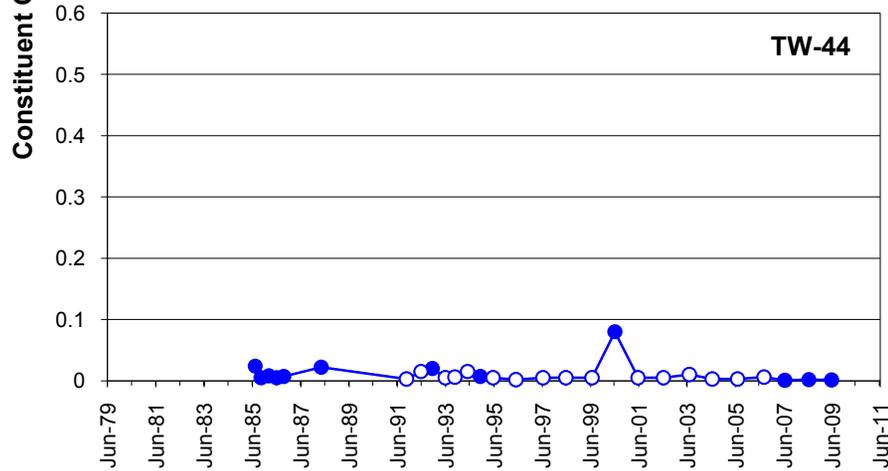
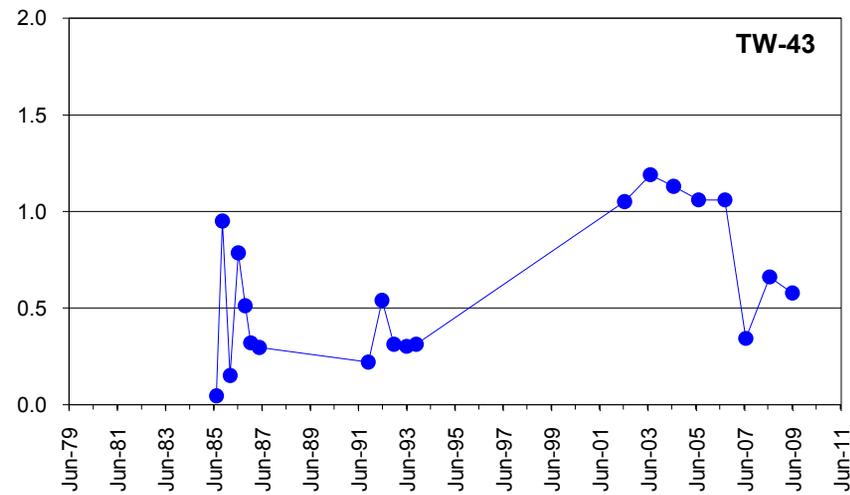
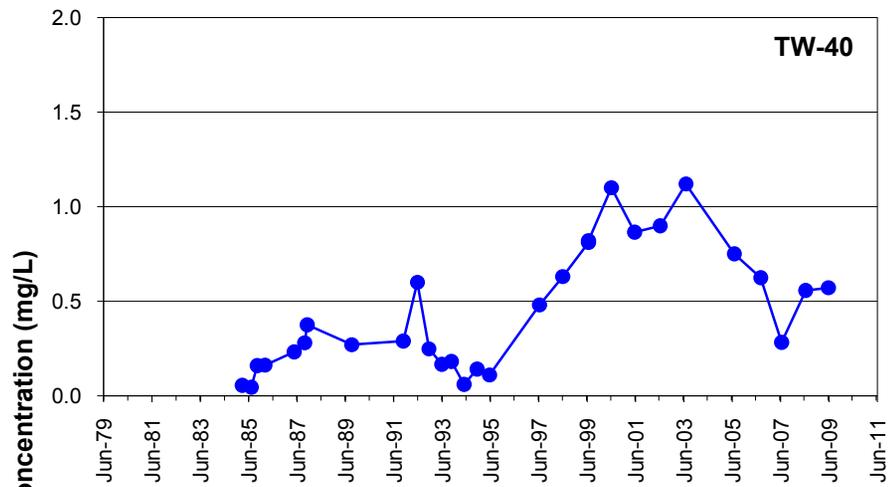
Sample Date

App E Selenium Charts 2009.xls

Remediation goals shown for point of compliance locations only



FILE NAME	TITLE		FIGURE E-8	
	Selenium in Underflow Solids Piles Area Wells		DRAWN FV	
			CHECKED MPK	
	CLIENT	Monsanto Company	PROJECT NO.	913-1101.605A
	PROJECT	Monsanto Groundwater Monitoring	DATE	19-Oct-09
			REVIEWED	DB



Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



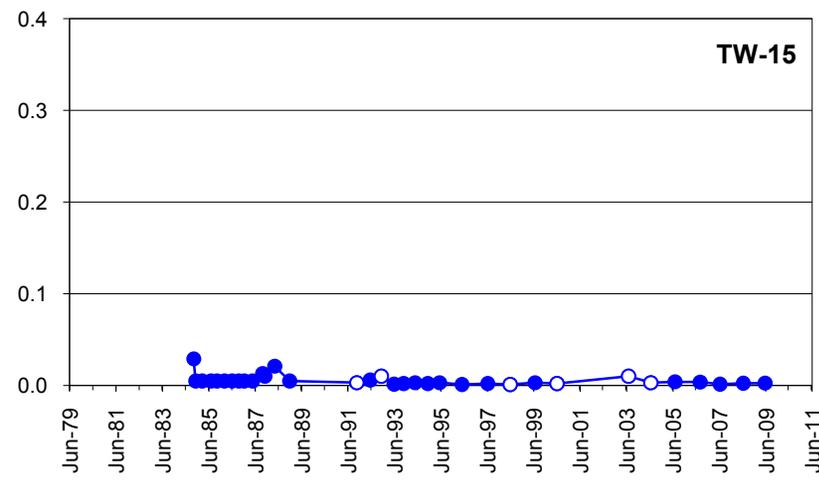
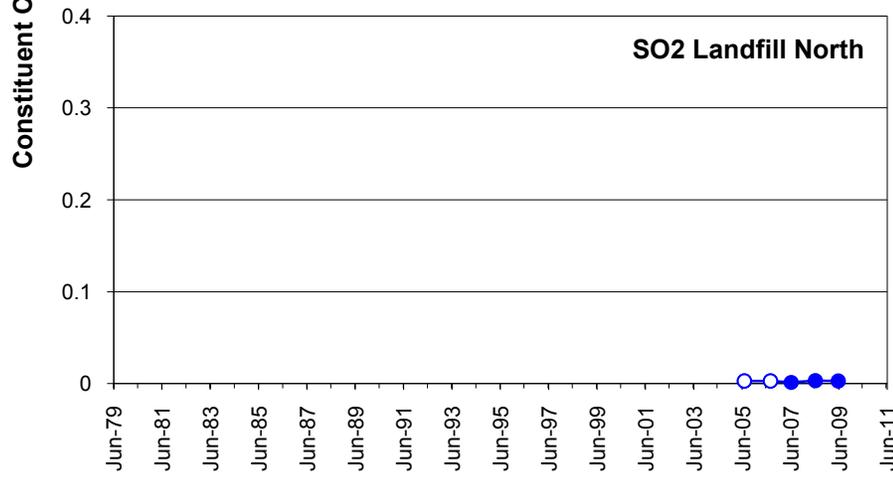
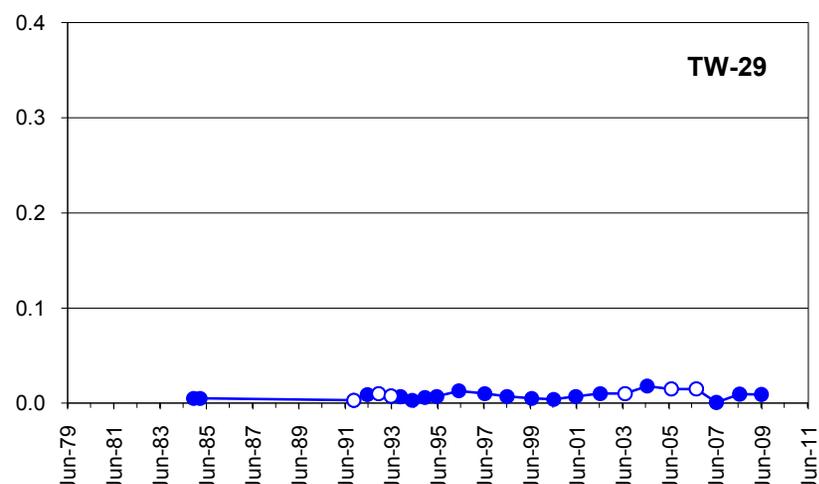
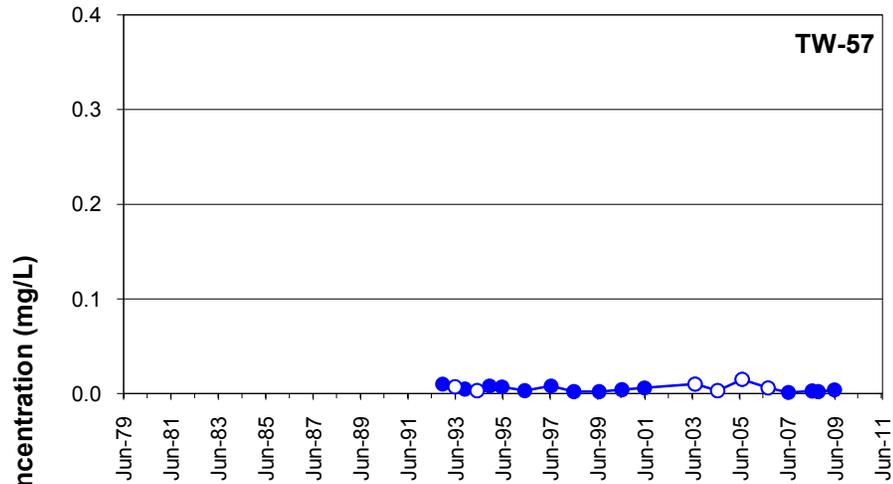
TITLE **Selenium in Hydroclarifier Area Wells**

FIGURE **E-9**

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



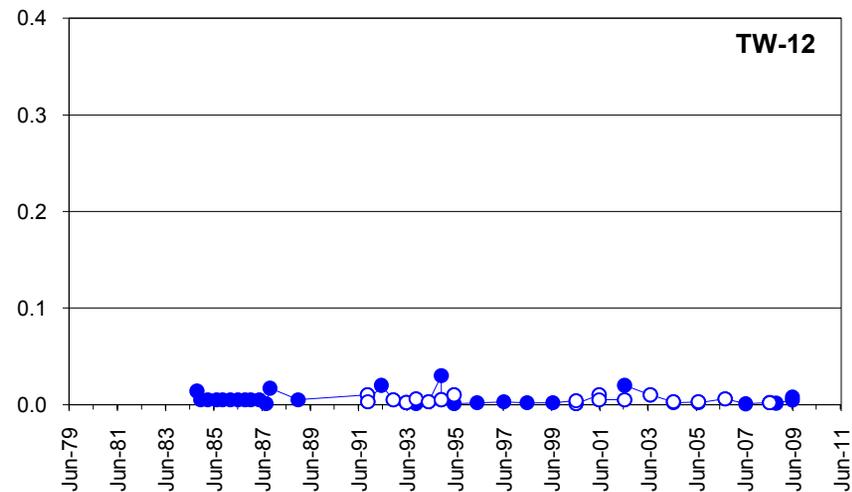
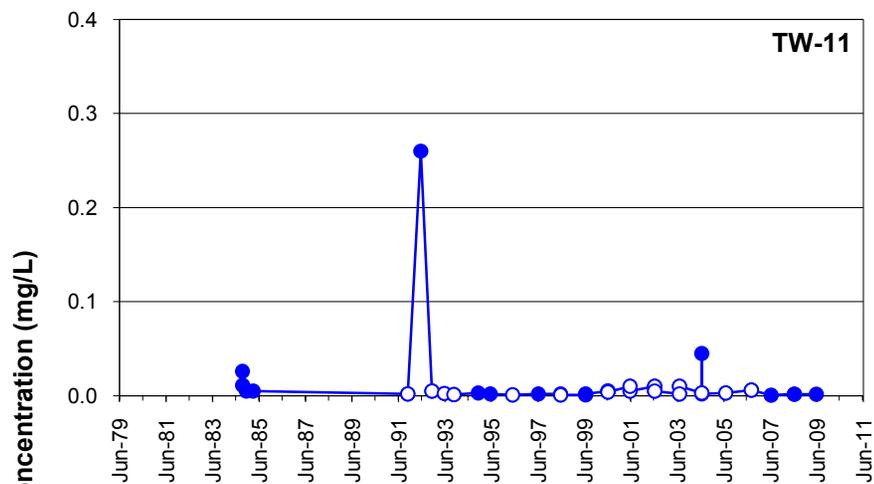
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



FILE NAME	TITLE		FIGURE E-10	
	Selenium in Background Wells		CLIENT	Monsanto Company
			PROJECT	Monsanto Groundwater Monitoring
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09
			DRAWN	FV
			CHECKED	MPK
			REVIEWED	DB



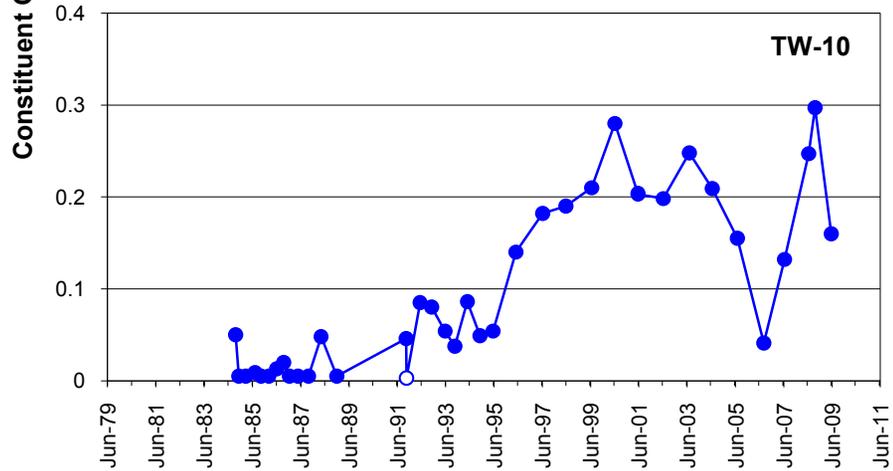
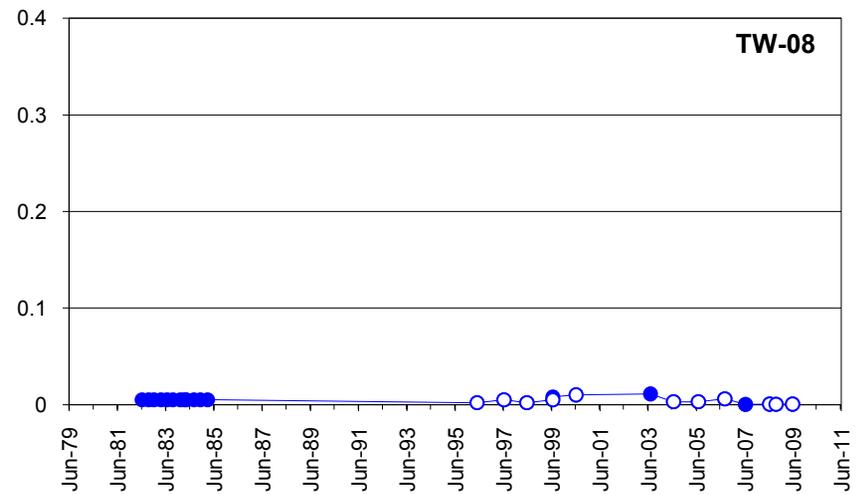
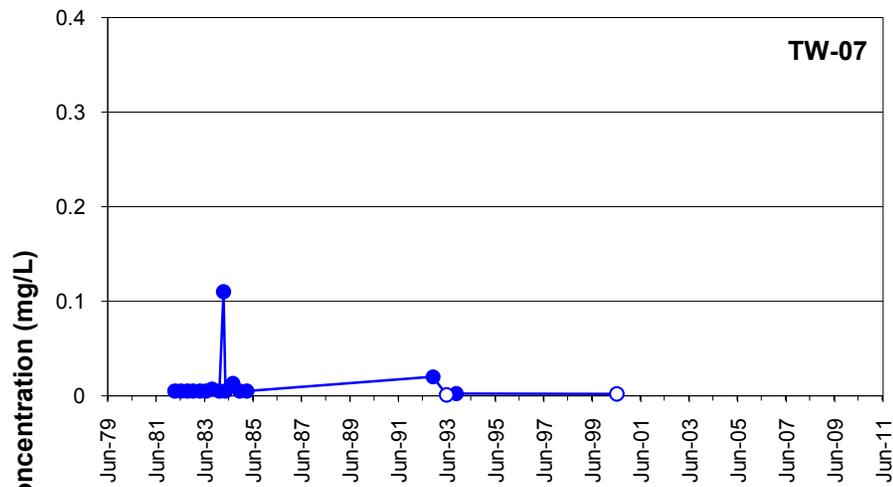
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



FILE NAME	TITLE		FIGURE E-11	
	Selenium in Southeast Corner Wells		DRAWN FV	
			CHECKED MPK	
	CLIENT	Monsanto Company	PROJECT NO.	913-1101.605A
	PROJECT	Monsanto Groundwater Monitoring	DATE	19-Oct-09
			REVIEWED	DB



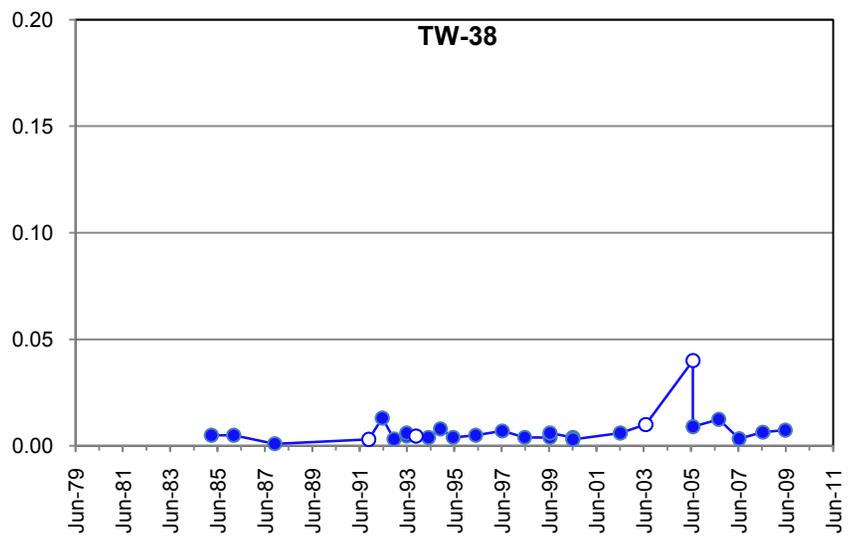
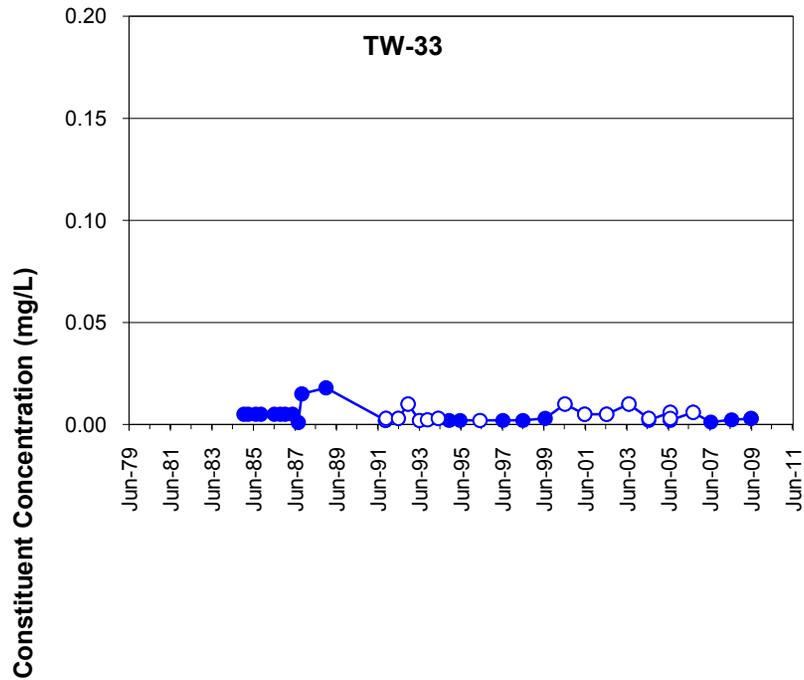
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



FILE NAME		TITLE		FIGURE E-12	
		Selenium in Southwest Corner Wells		DRAWN FV	
		CLIENT	Monsanto Company	CHECKED	MPK
		PROJECT	Monsanto Groundwater Monitoring	REVIEWED	DB
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09



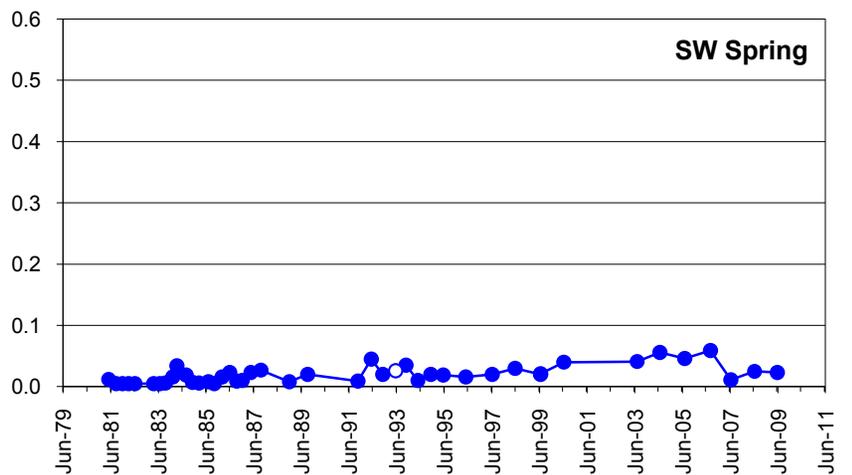
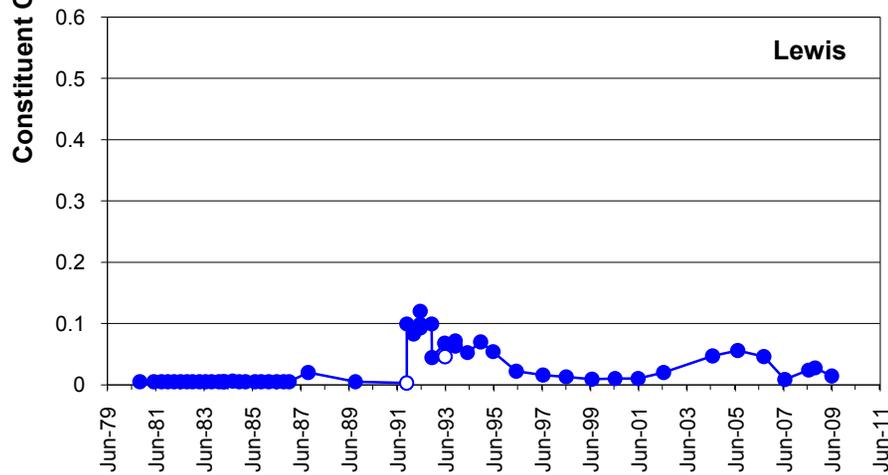
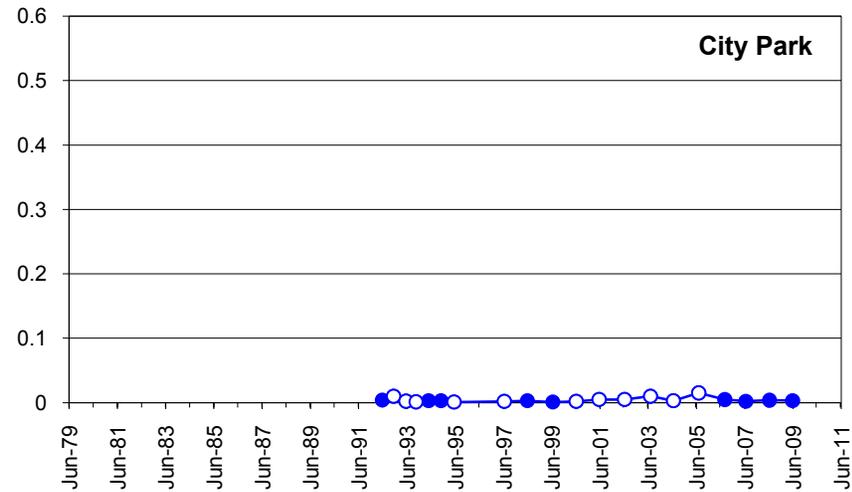
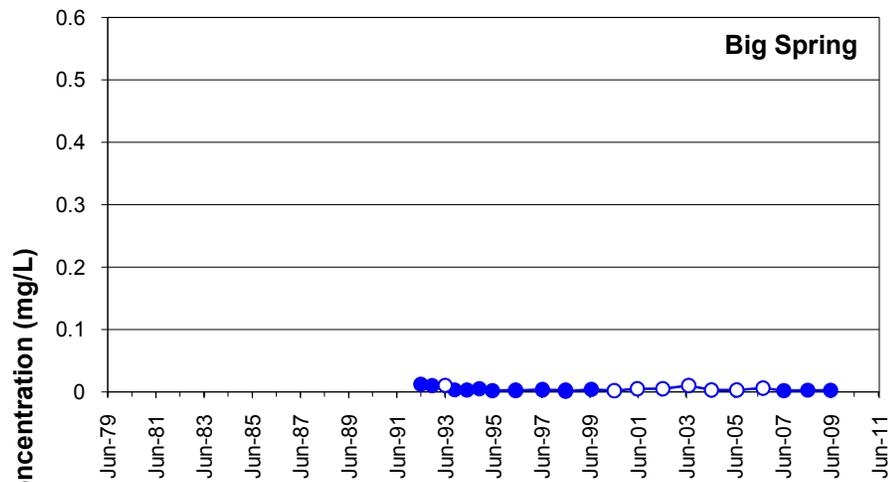
Sample Date

FILE NAME App E Selenium Charts 2009.xls

Remediation goals shown for point of compliance locations only



TITLE		Selenium in East Wells		FIGURE E-13	
		CLIENT		DRAWN	
		Monsanto Company		FV	
		PROJECT		CHECKED	
		Monsanto Groundwater Monitoring		MPK	
		PROJECT NO.		DATE	
		913-1101.605A		19-Oct-09	
				REVIEWED	
				DB	



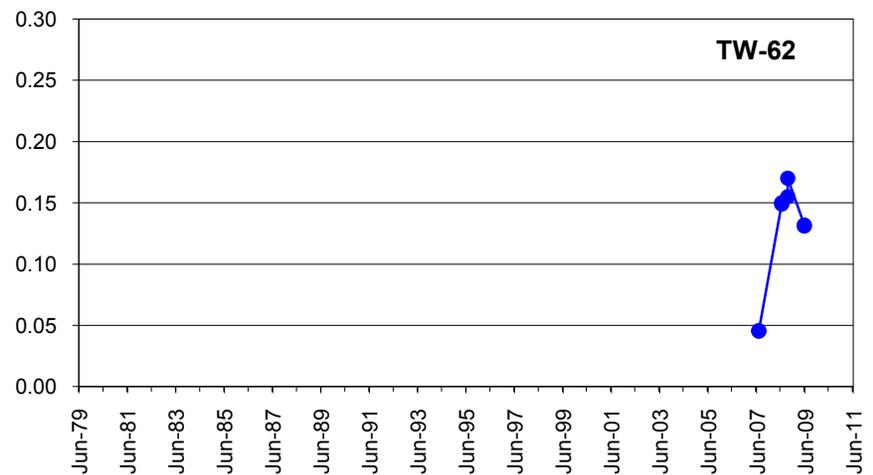
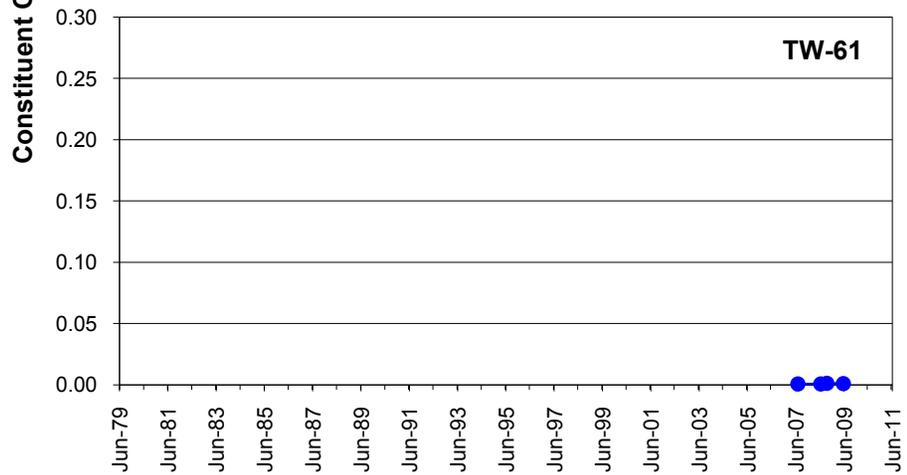
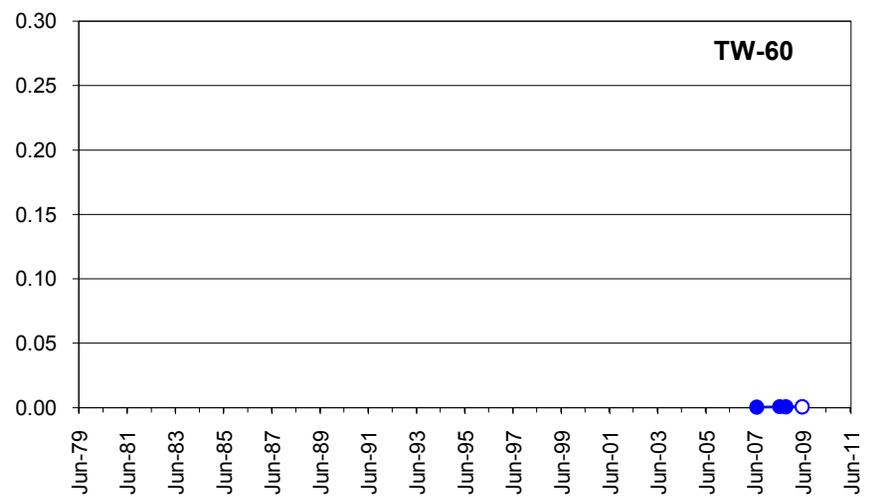
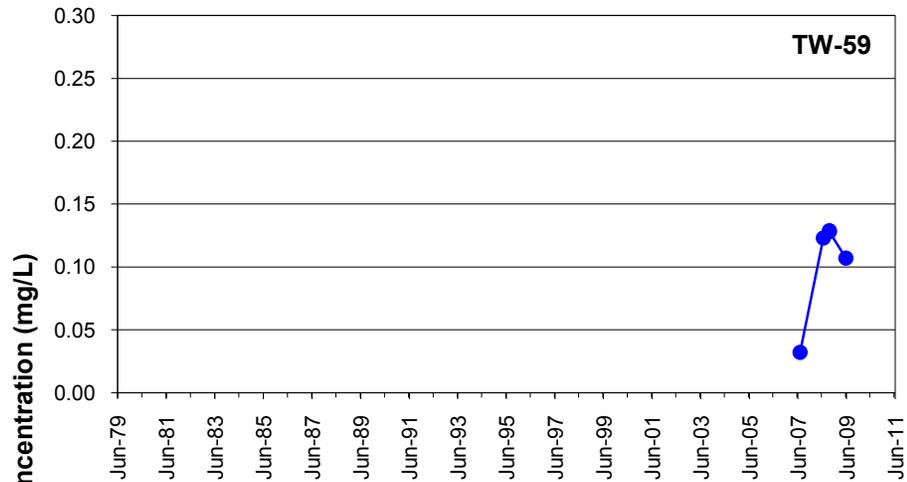
Sample Date

Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



FILE NAME	TITLE		FIGURE E-14	
	Selenium in Offsite Wells and Springs		DRAWN FV	
			CHECKED MPK	
	CLIENT	Monsanto Company	PROJECT NO.	913-1101.605A
	PROJECT	Monsanto Groundwater Monitoring	DATE	19-Oct-09
			REVIEWED	DB



Sample Date

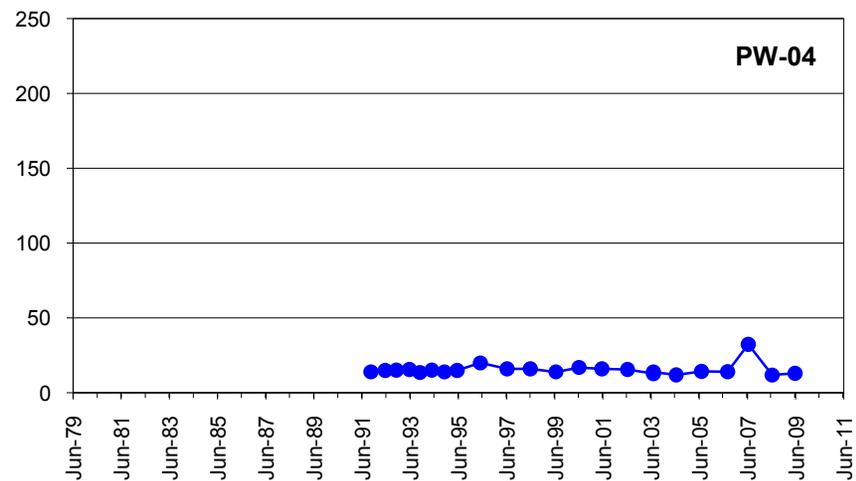
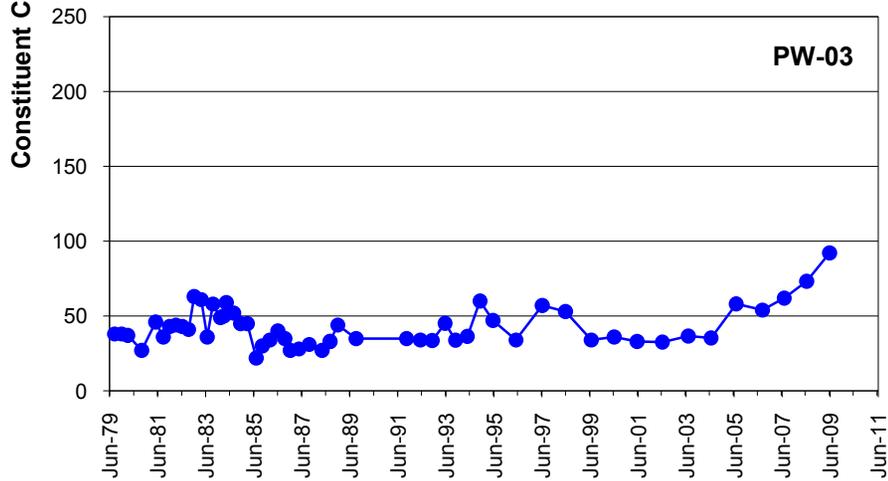
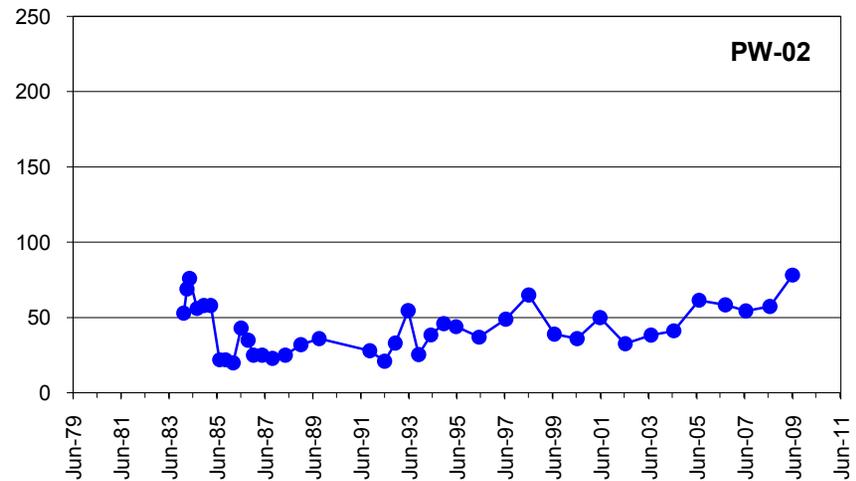
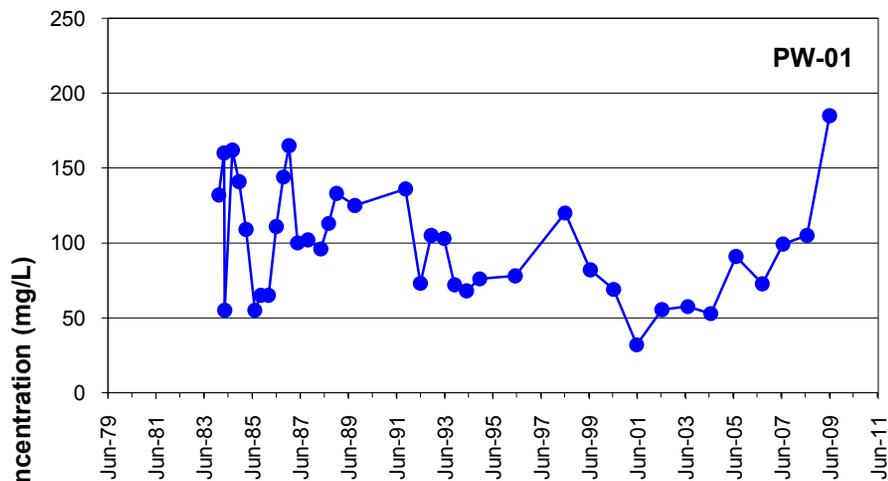
Remediation goals shown for point of compliance locations only

App E Selenium Charts 2009.xls



FILE NAME	TITLE		FIGURE E-15	
	Selenium in 2007 Monitoring Wells		CLIENT	Monsanto Company
			PROJECT	Monsanto Groundwater Monitoring
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09
			DRAWN	FV
			CHECKED	MPK
			REVIEWED	DB

APPENDIX F
TIME-HISTORY GRAPHS FOR CHLORIDE



Sample Date

FILE NAME App F Chloride Charts 2009.xls



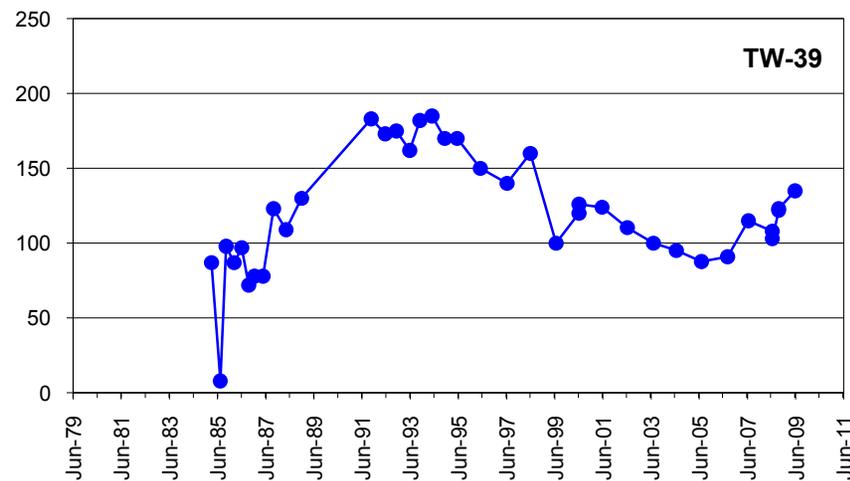
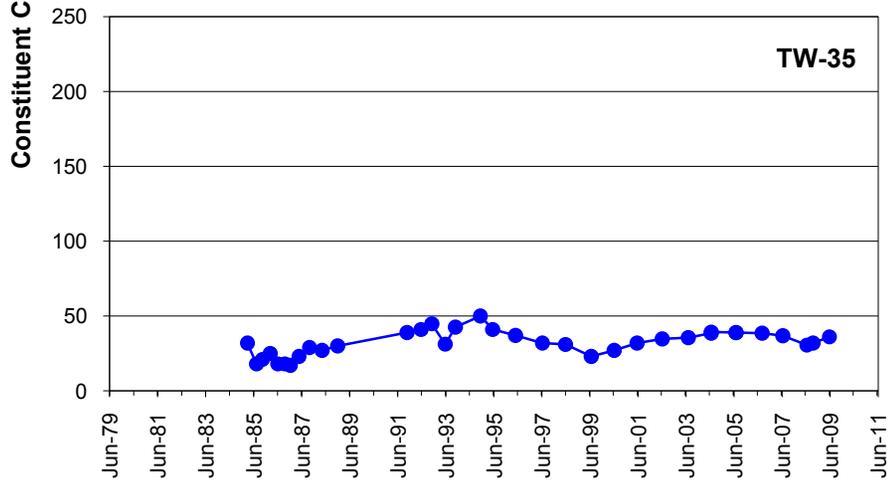
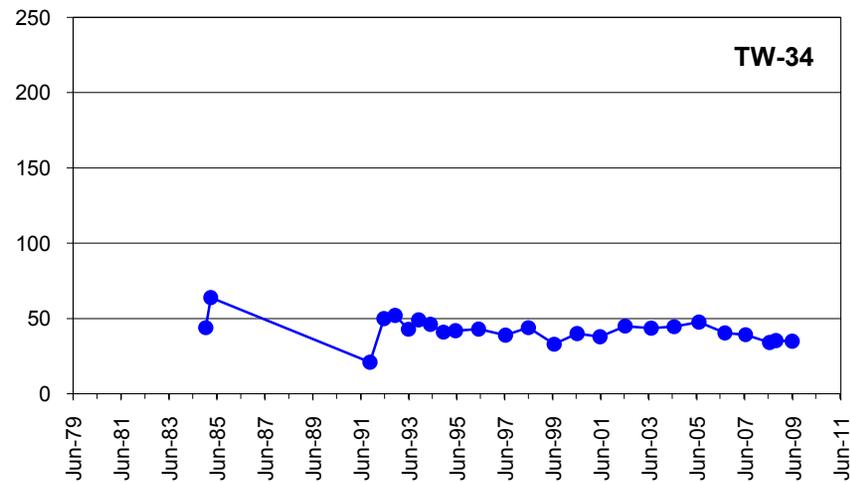
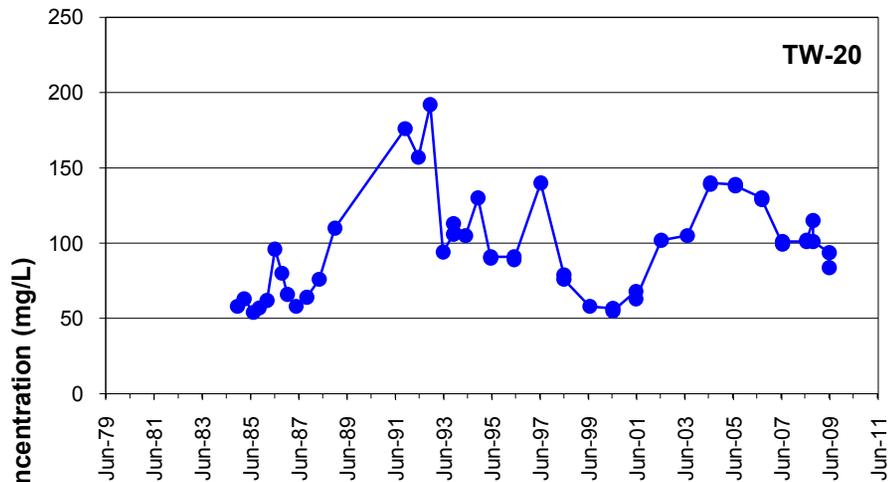
Chloride in Production Wells

FIGURE F-1

—●— Constituent Concentration (mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



Sample Date

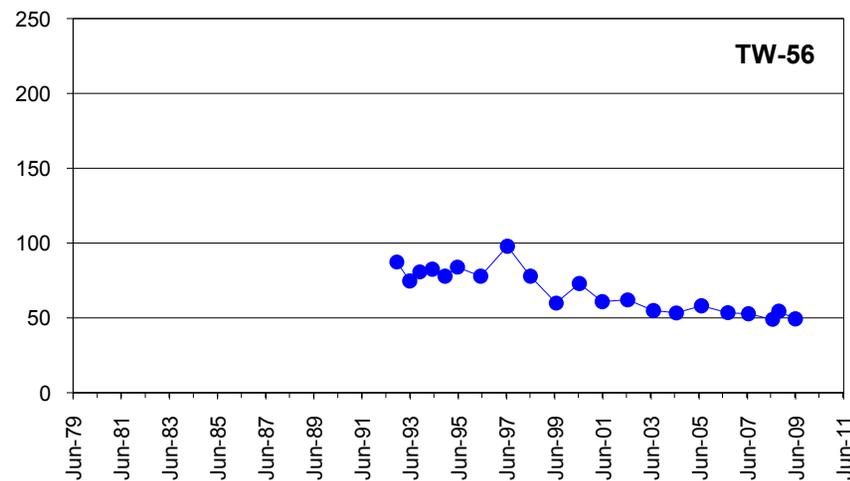
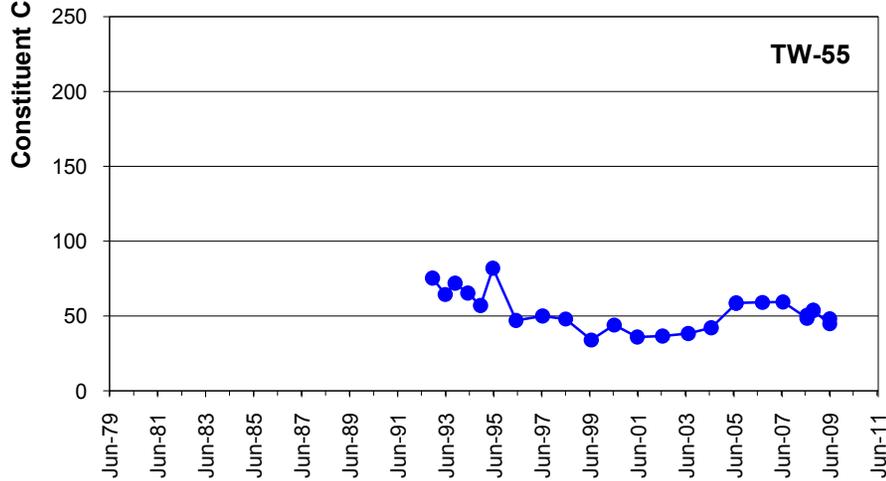
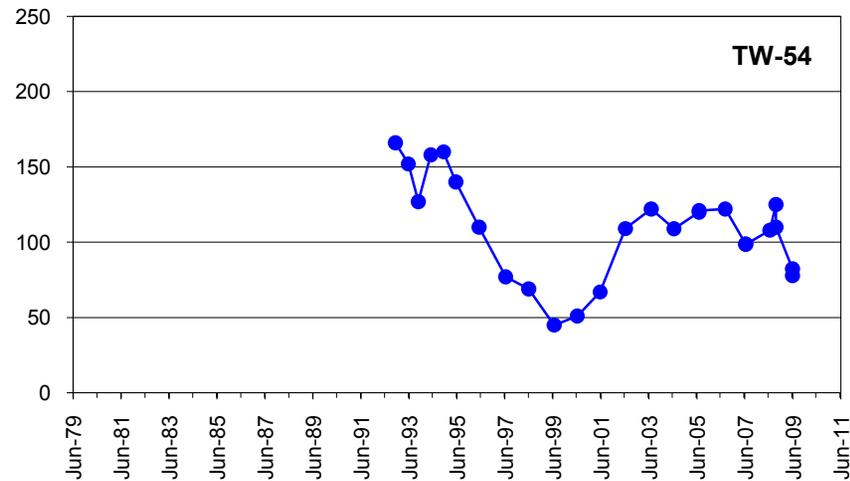
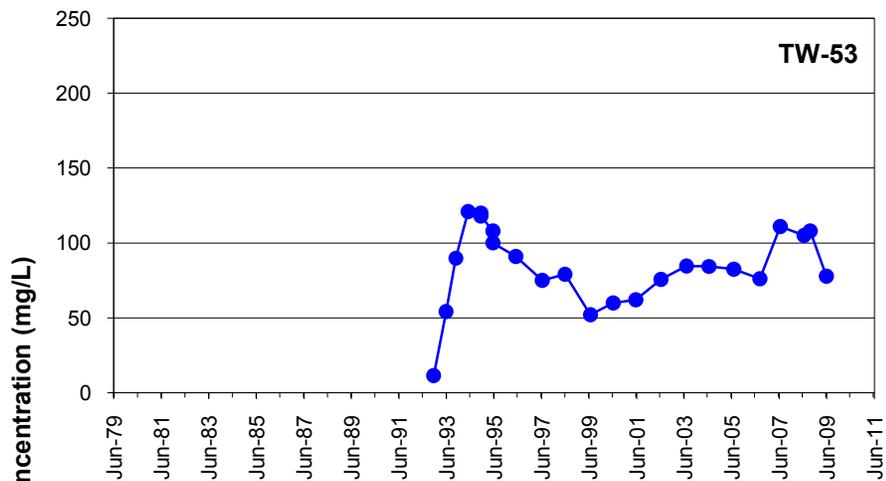
FILE NAME App F Chloride Charts 2009.xls



TITLE **Chloride in South Fenceline Wells** **FIGURE F-2**

—●— Constituent Concentration (mg/L)

CLIENT	Monsanto Company	DRAWN	FV
PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
PROJECT NO.	913-1101.605A	DATE	3-Sep-09
		REVIEWED	DB



Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE

Chloride in Southern Boundary Wells

FIGURE F-3

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

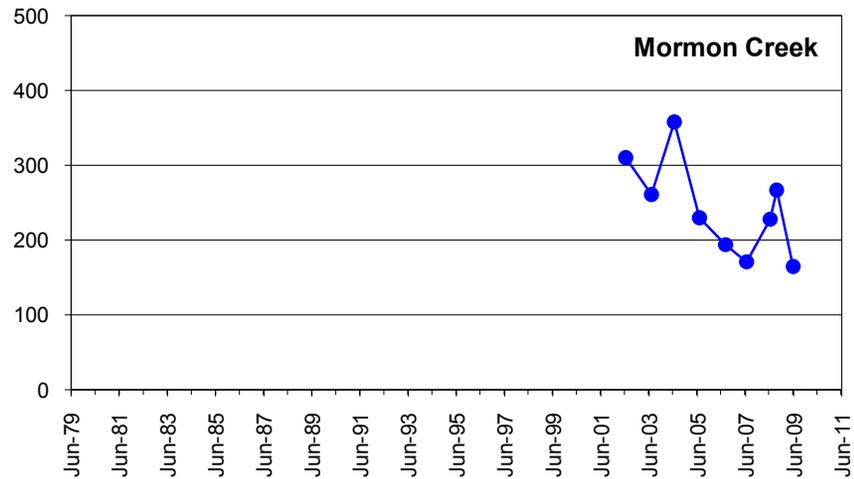
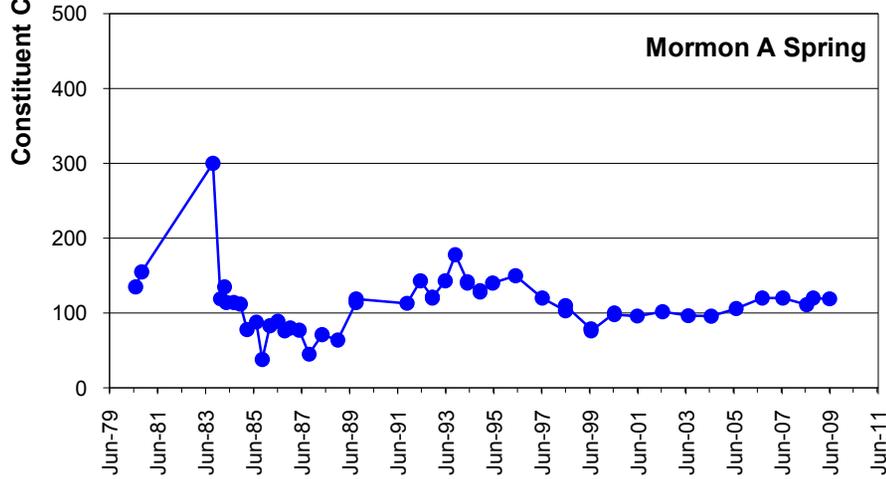
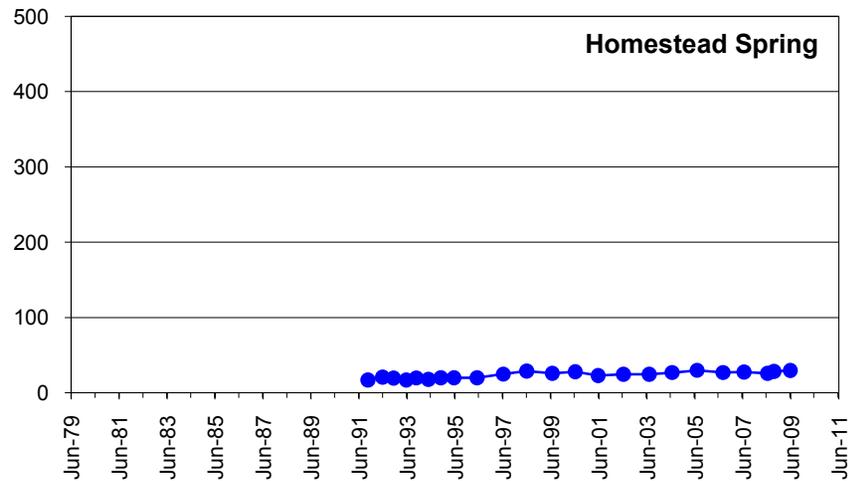
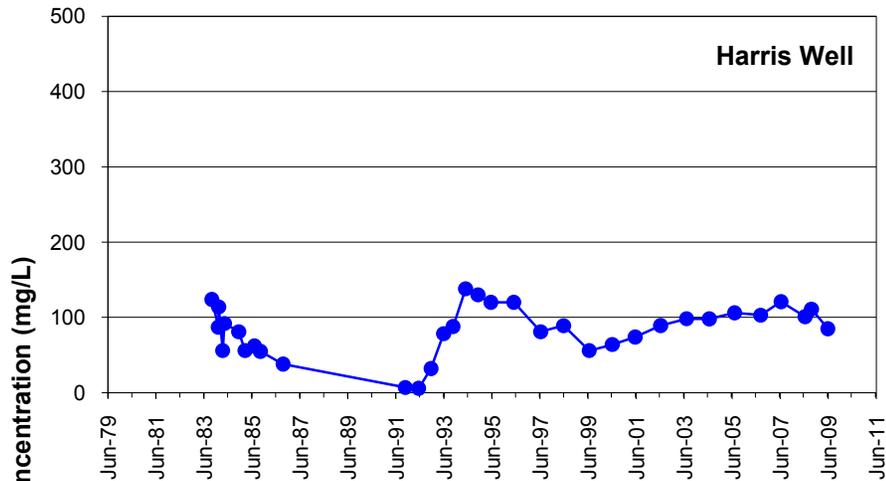
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

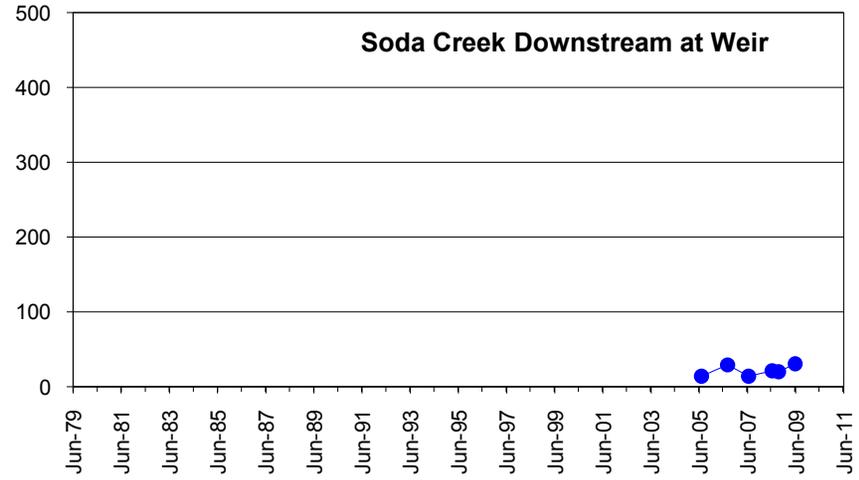
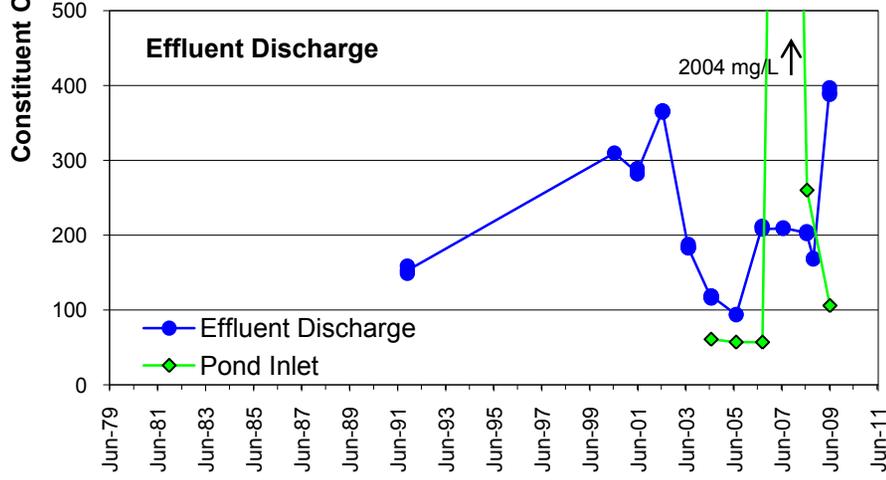
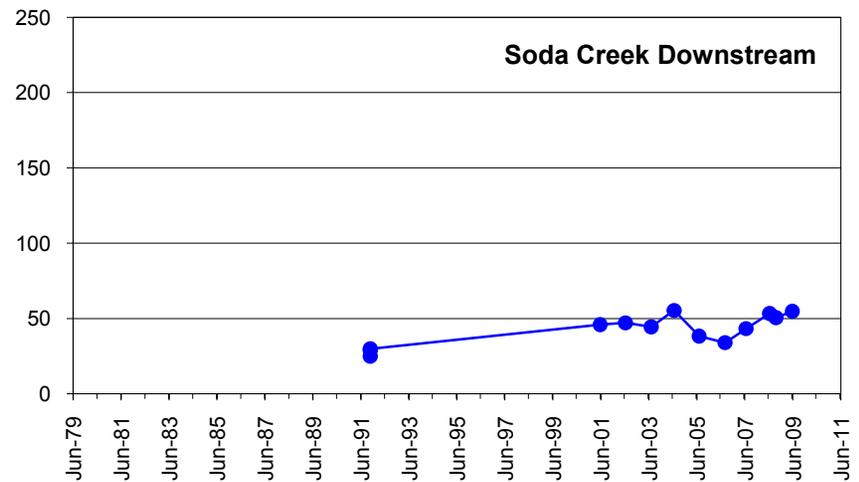
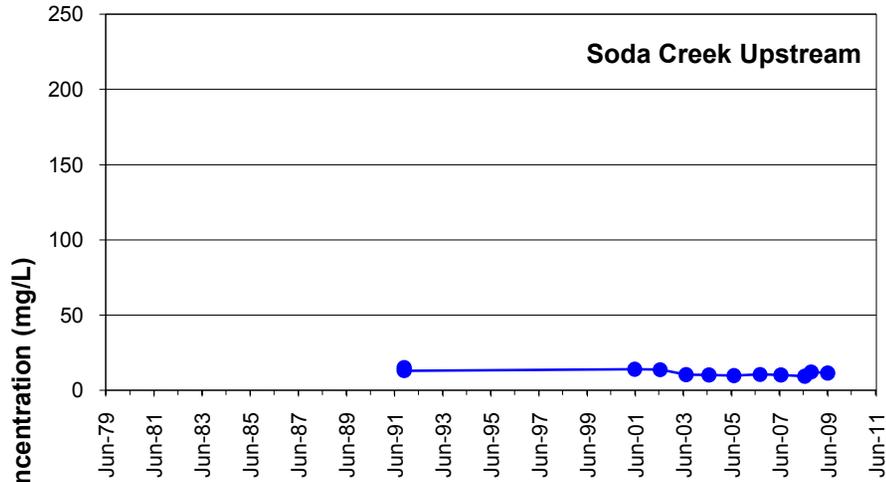


Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE		Chloride in Harris Well and Springs South of Plant		FIGURE F-4	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09

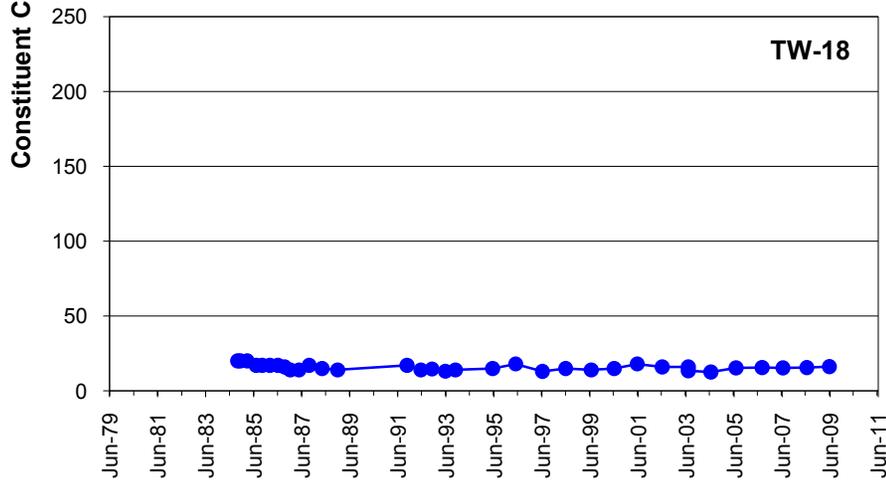
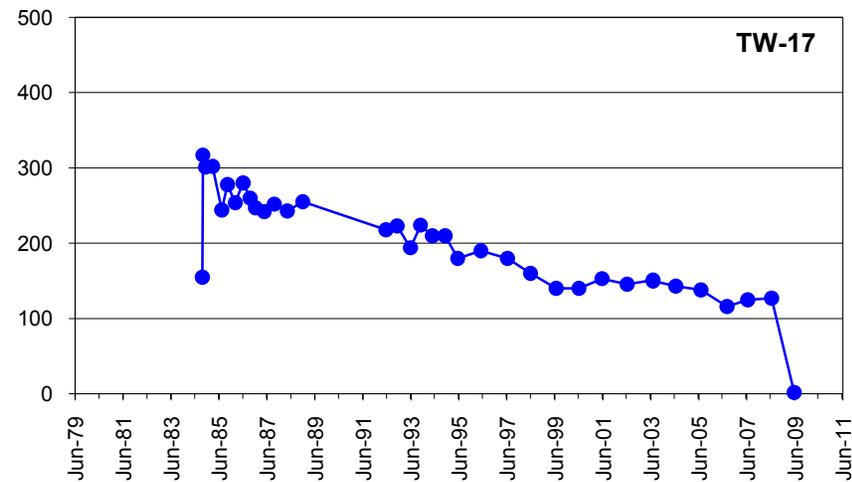
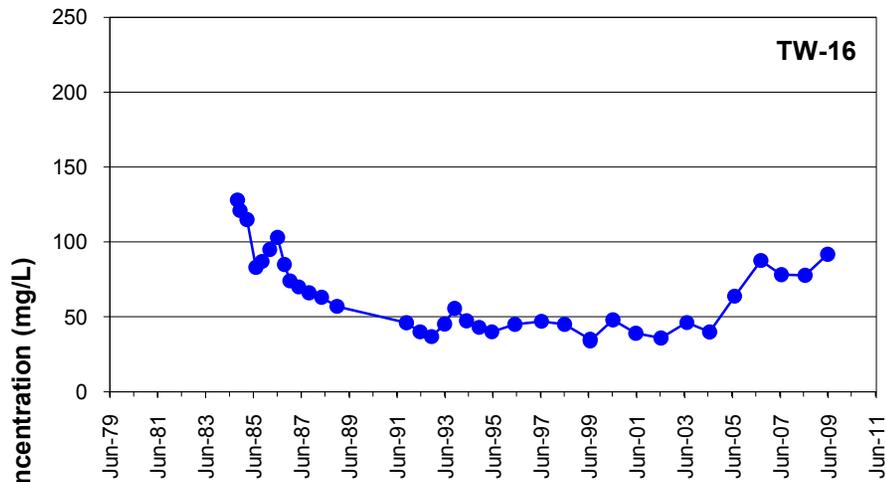


Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE		Chloride in Soda Creek and Effluent Discharge		FIGURE F-5			
		CLIENT	Monsanto Company		DRAWN	FV	
		PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK	
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED	DB



Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE

Chloride in NW Pond Wells

FIGURE F-6

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

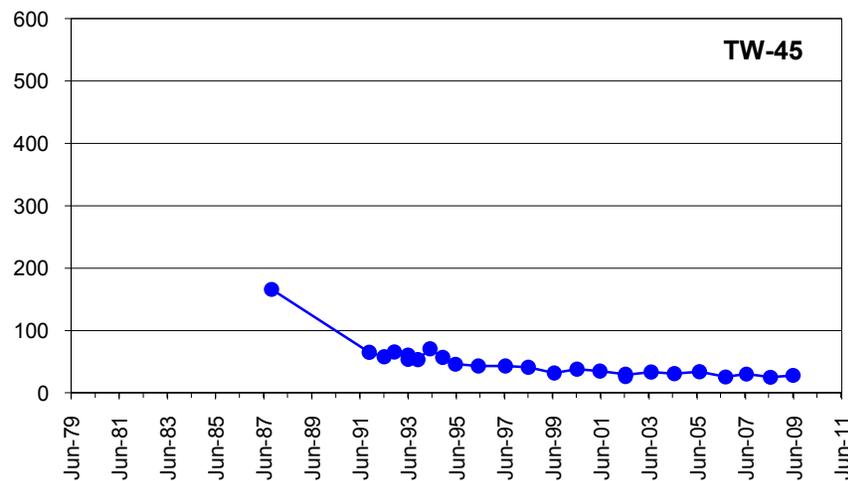
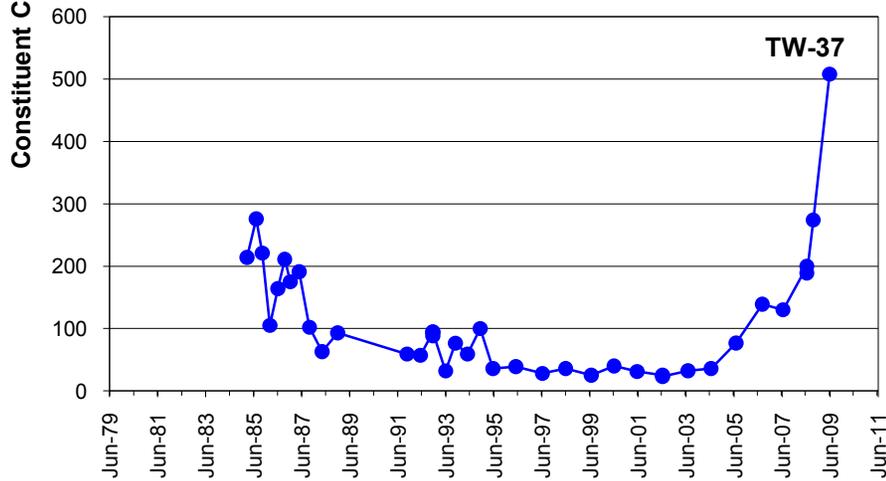
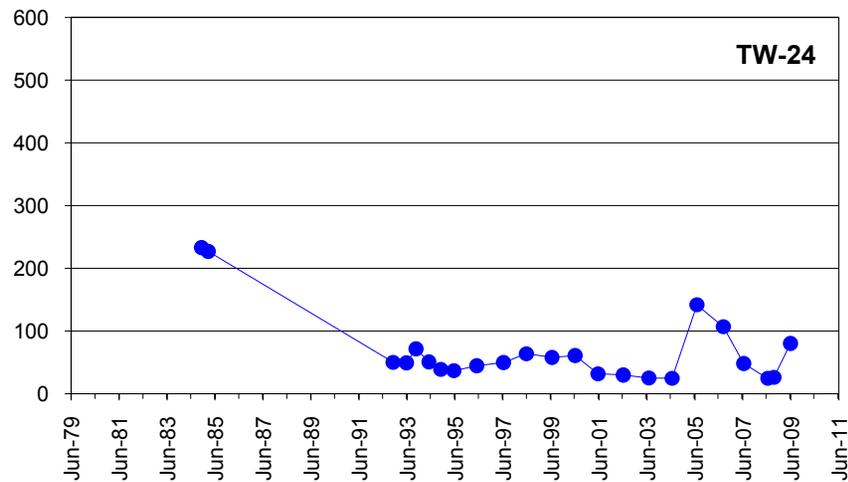
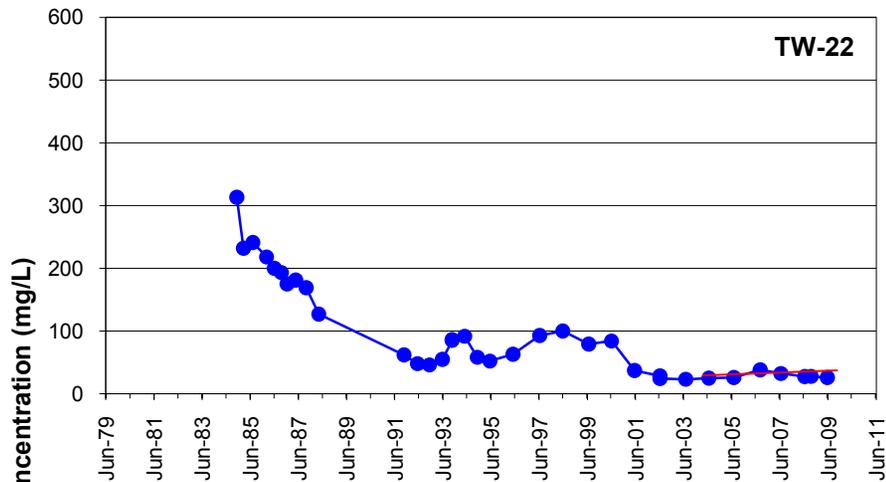
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App F Chloride Charts 2009.xls



Chloride in Old Underflow Solids Pond Area Wells

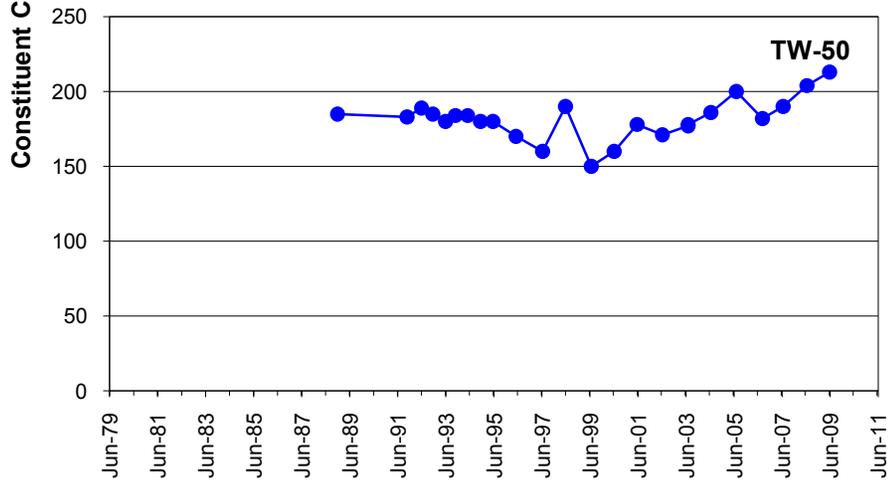
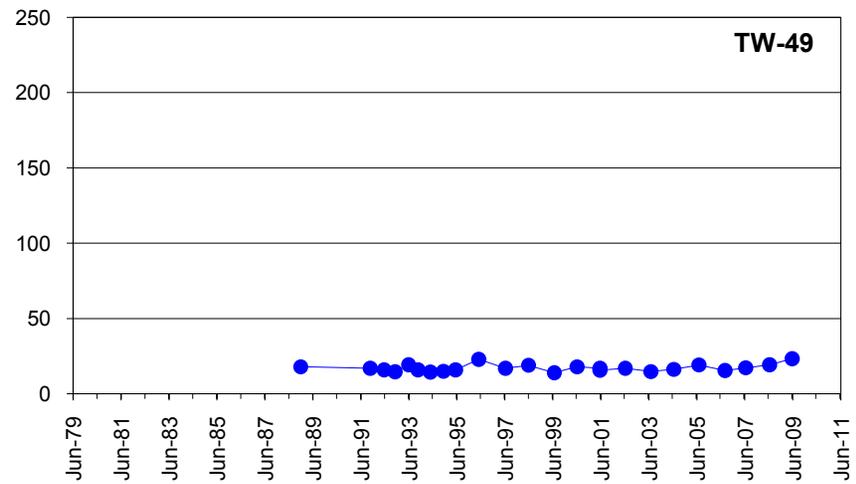
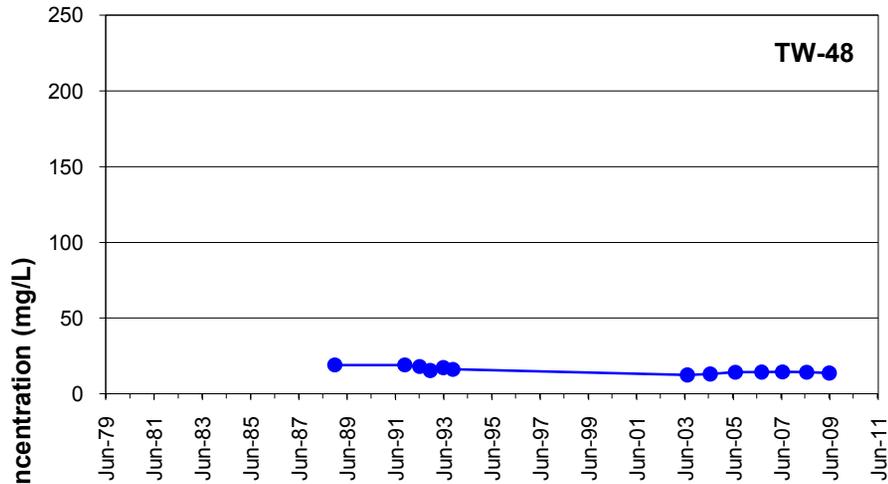
FIGURE F-7

—●— Constituent Concentration (mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A

DATE 3-Sep-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



Sample Date

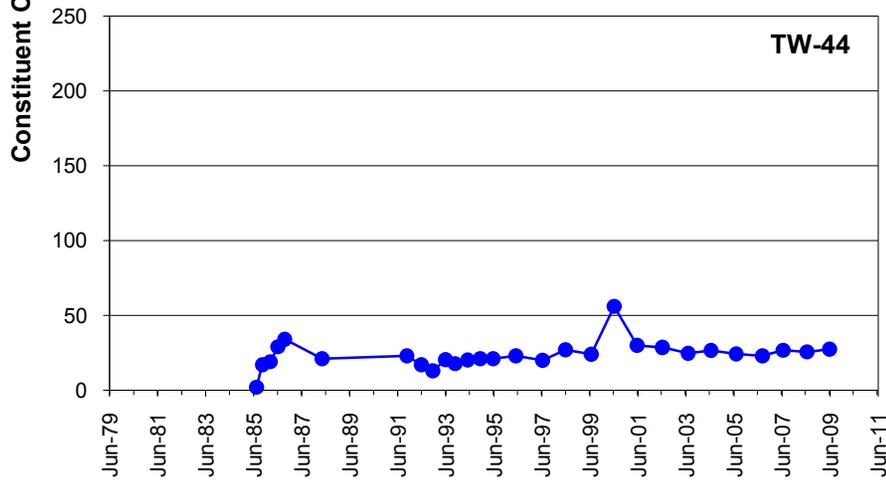
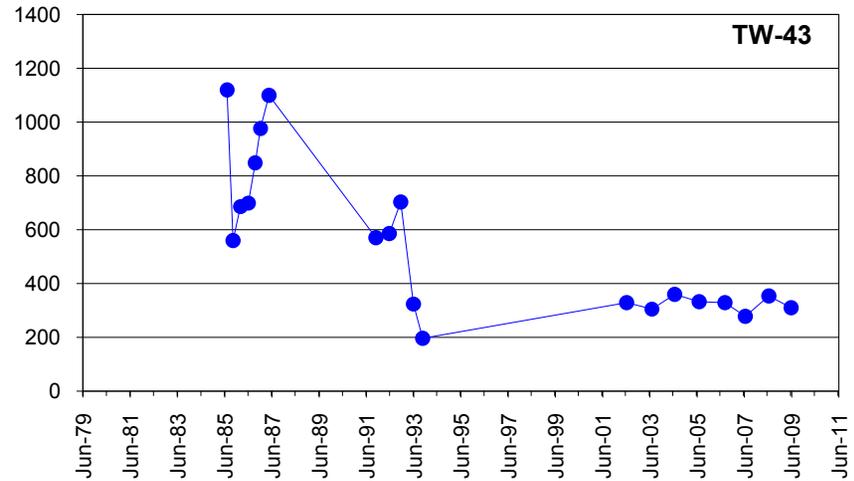
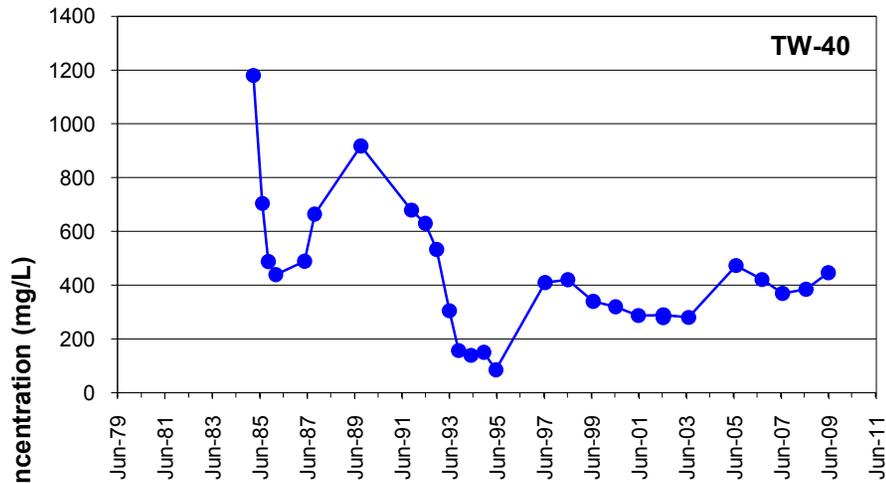
FILE NAME App F Chloride Charts 2009.xls



Chloride in Underflow Solids Piles Area Wells

FIGURE F-8

	CLIENT	Monsanto Company	DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09
			REVIEWED	DB



Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE

Chloride in Hydroclarifier Area Wells

FIGURE F-9

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

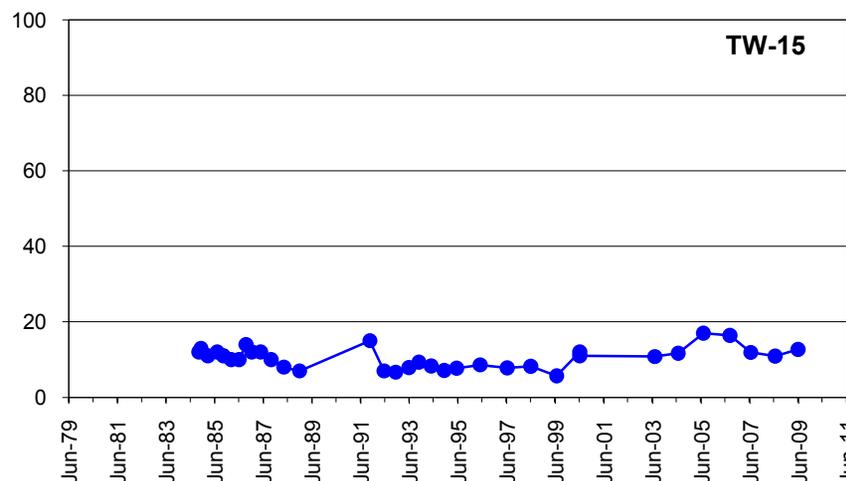
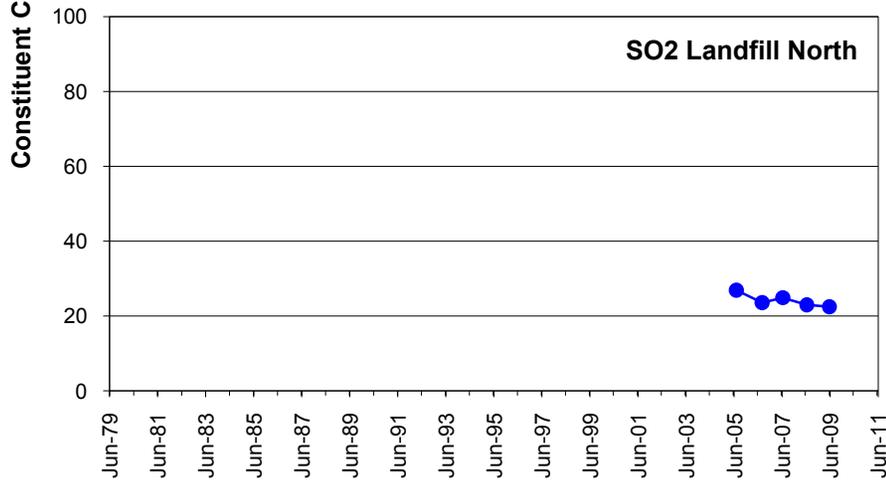
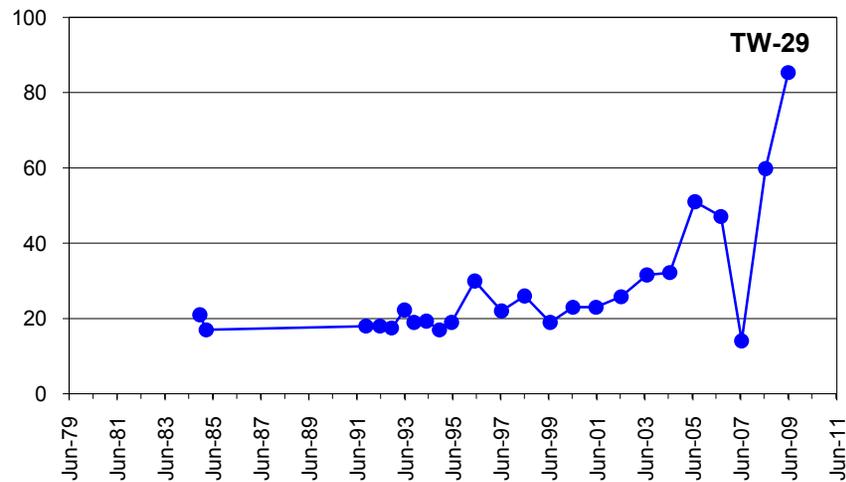
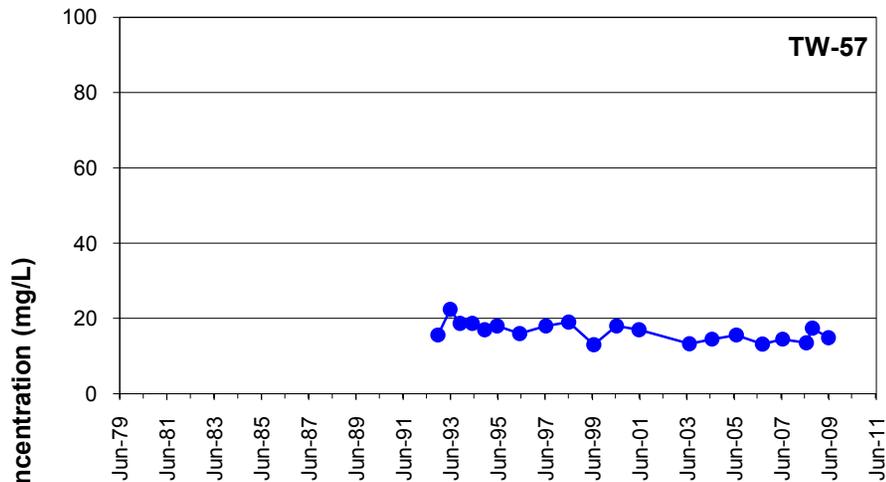
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

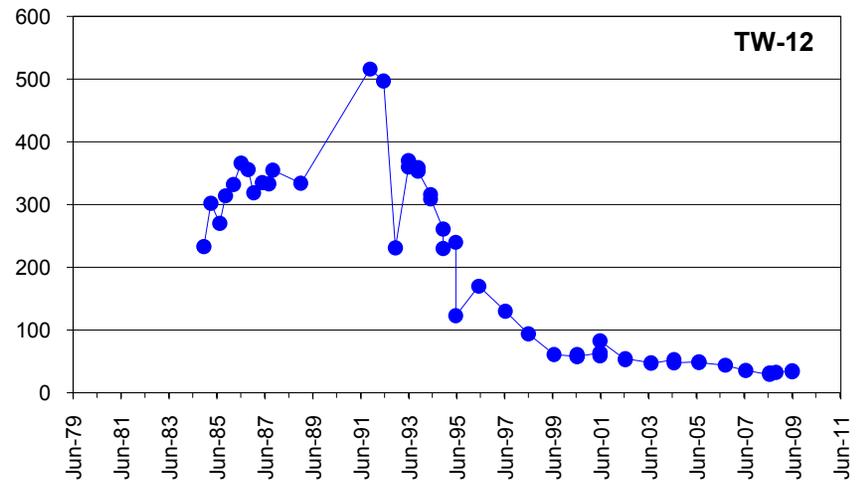
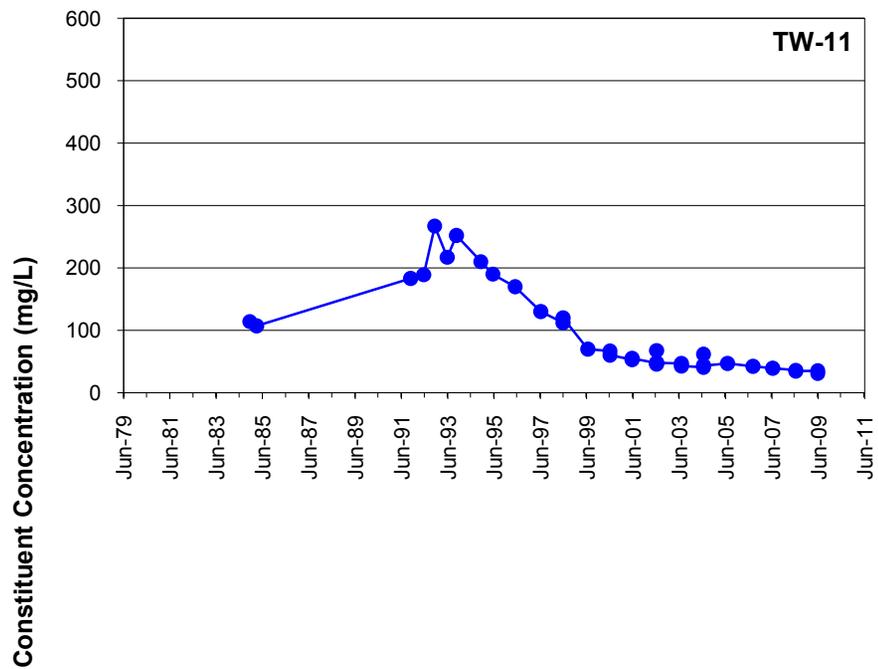


Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE		Chloride in Background Wells		FIGURE F-10	
		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09



Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE

Chloride in Southeast Corner Wells

FIGURE F-11

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

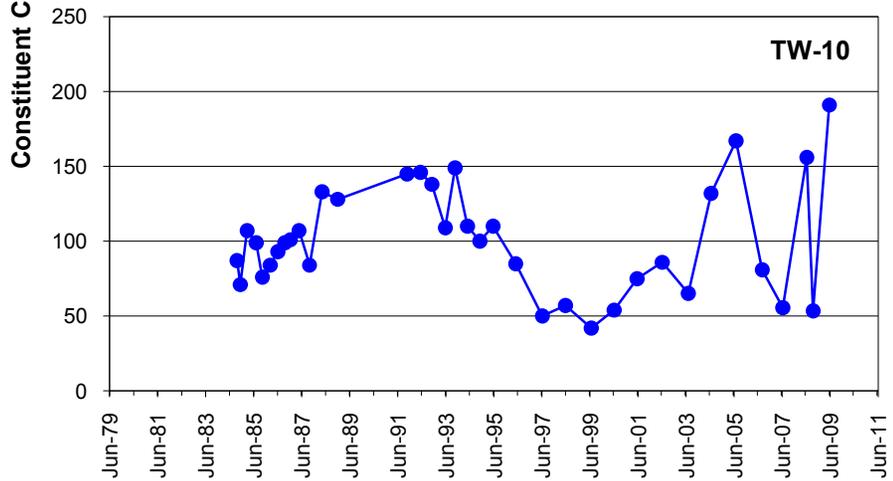
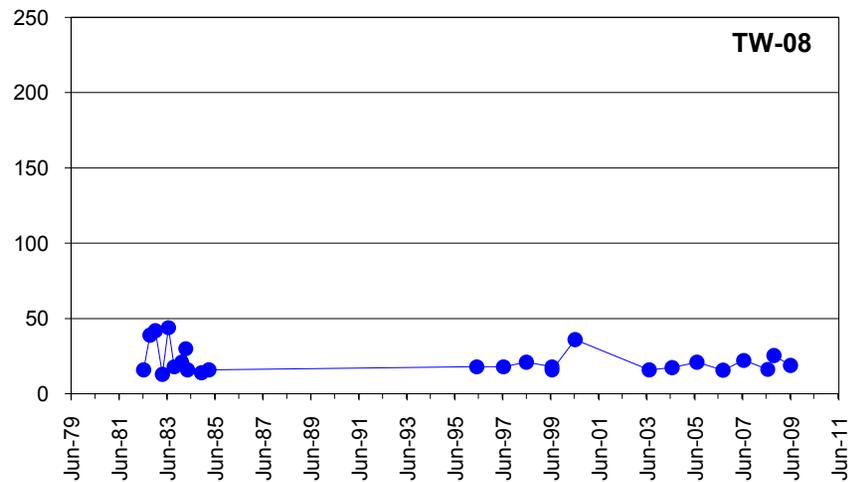
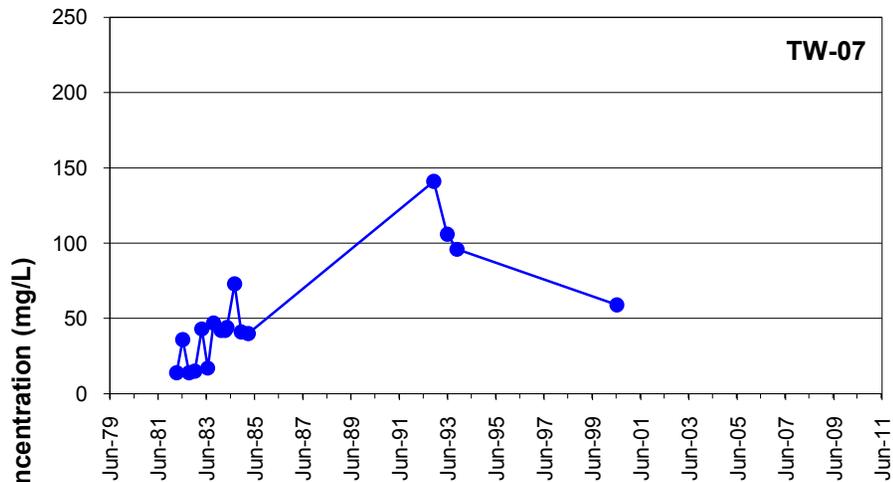
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE

Chloride in Southwest Corner Wells

FIGURE F-12

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

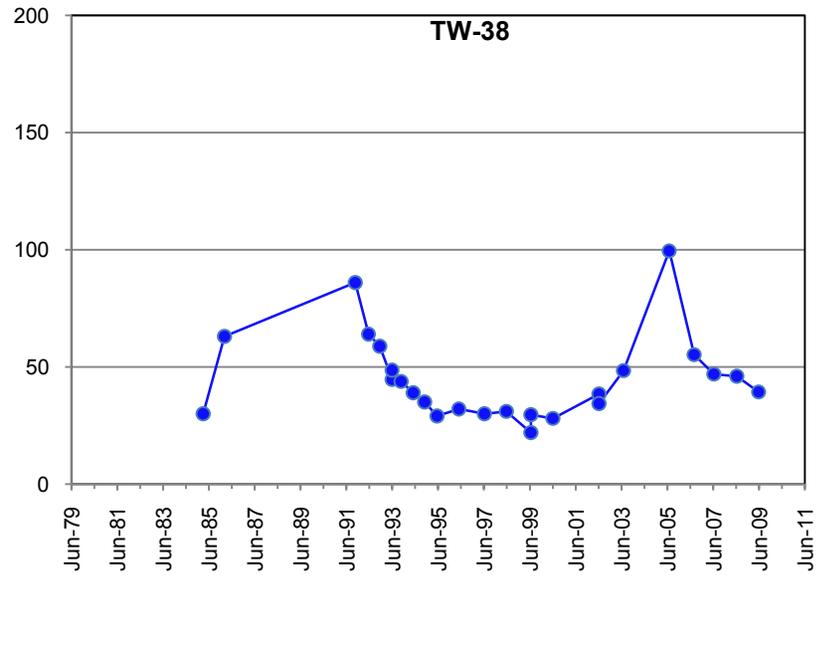
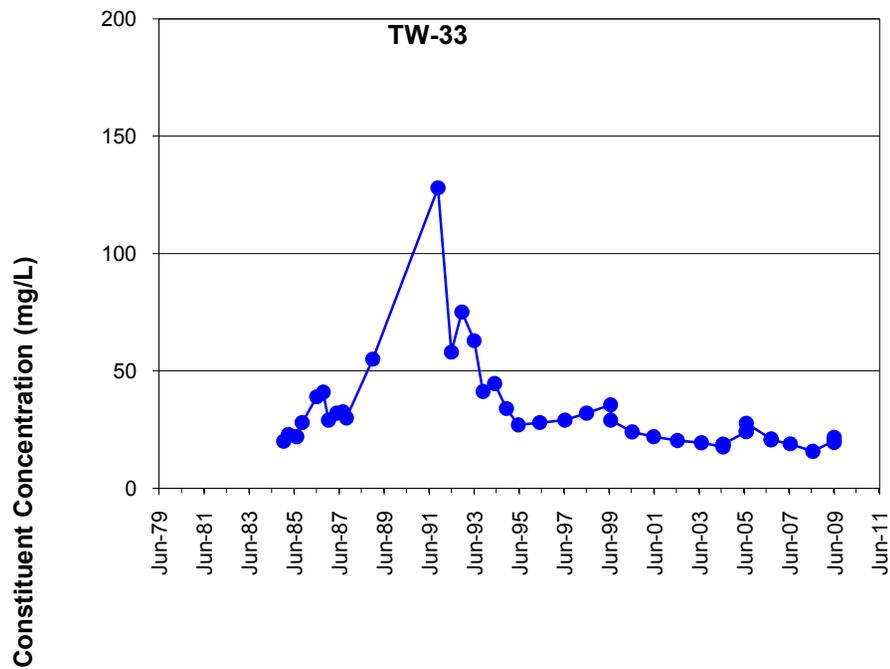
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

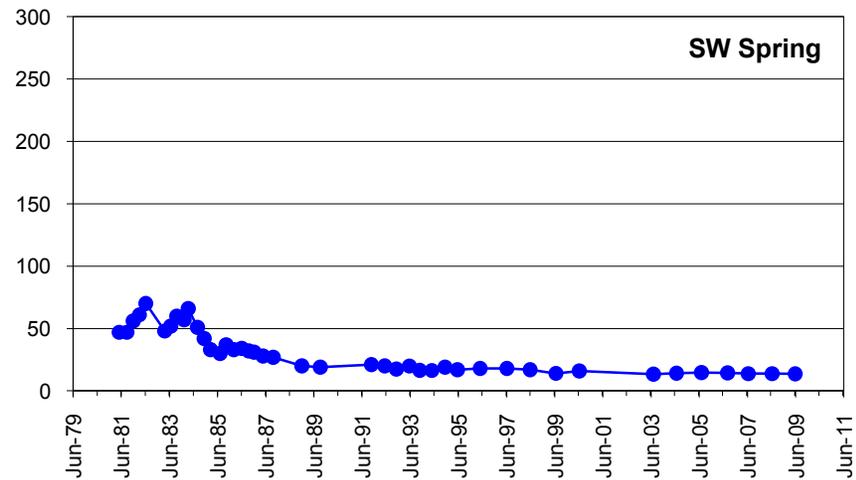
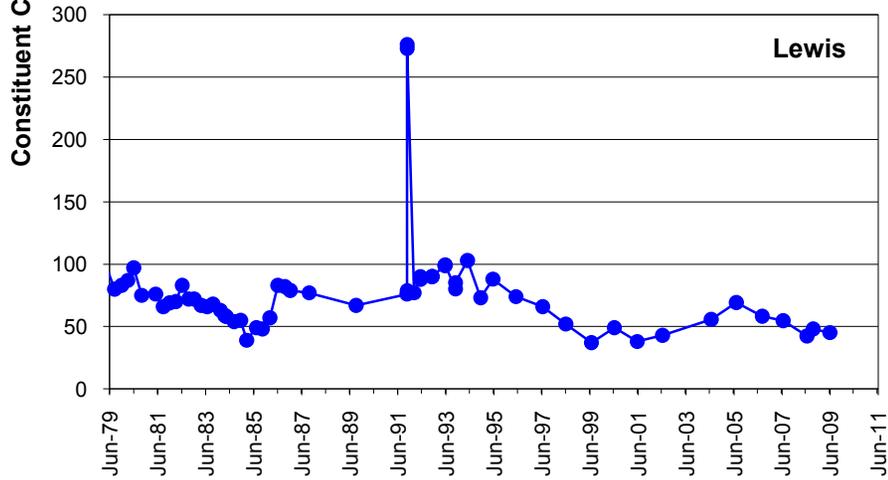
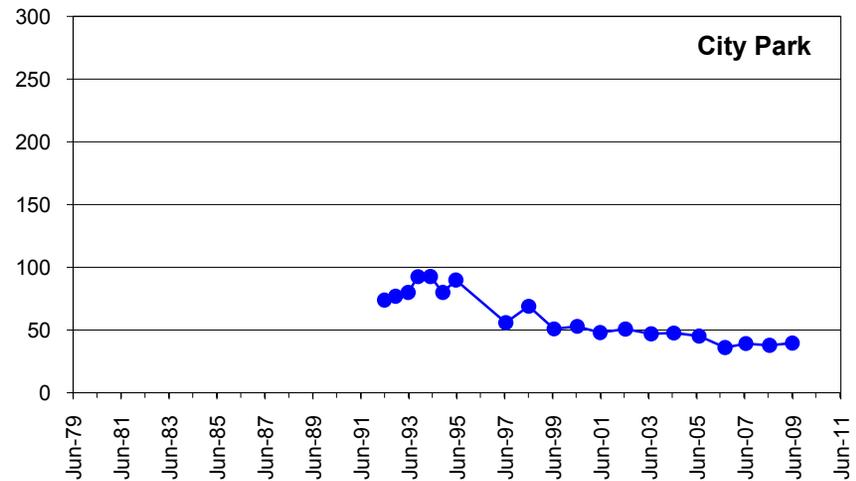
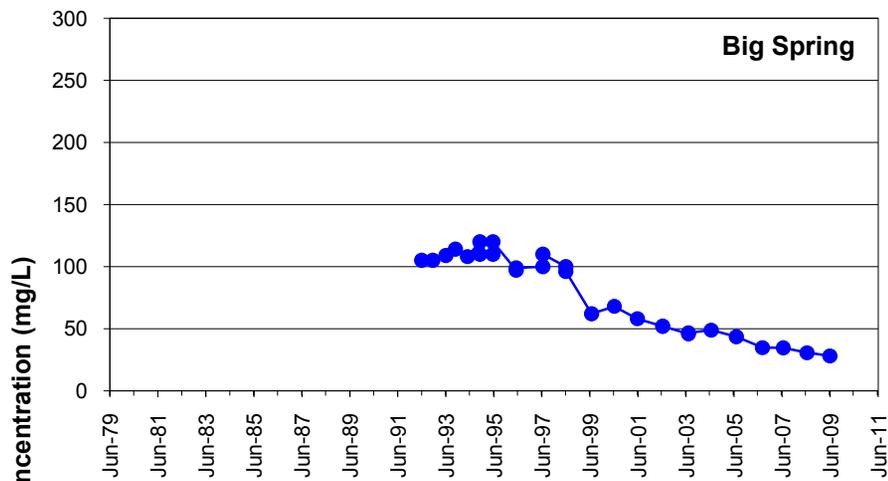


Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE		Chloride in East Area Wells		FIGURE F-13	
		CLIENT		Monsanto Company	
		PROJECT		Monsanto Groundwater Monitoring	
		PROJECT NO.		913-1101.605A	
		DATE		3-Sep-09	
		DRAWN		FV	
		CHECKED		MPK	
		REVIEWED		DB	



Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE

Chloride in Offsite Wells and Springs

FIGURE F-14

● Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

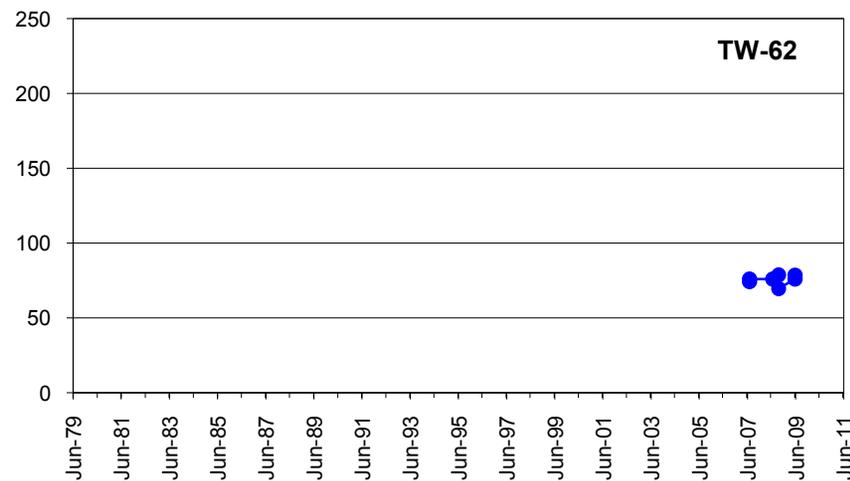
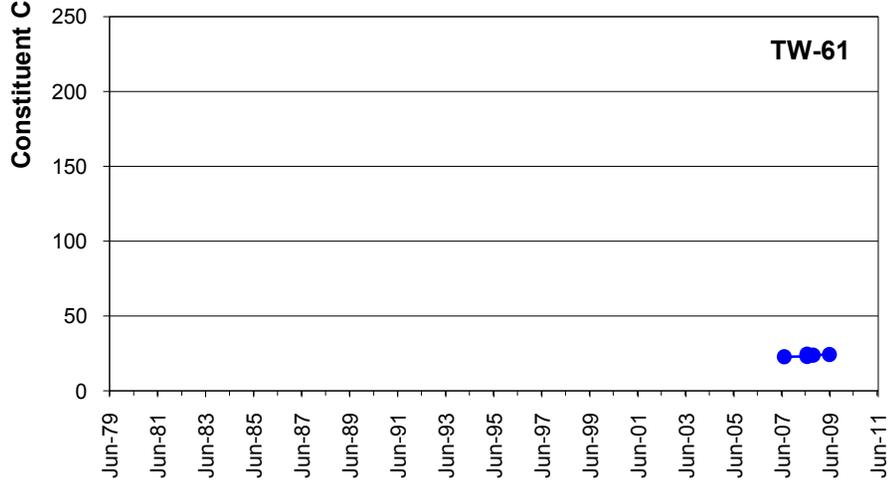
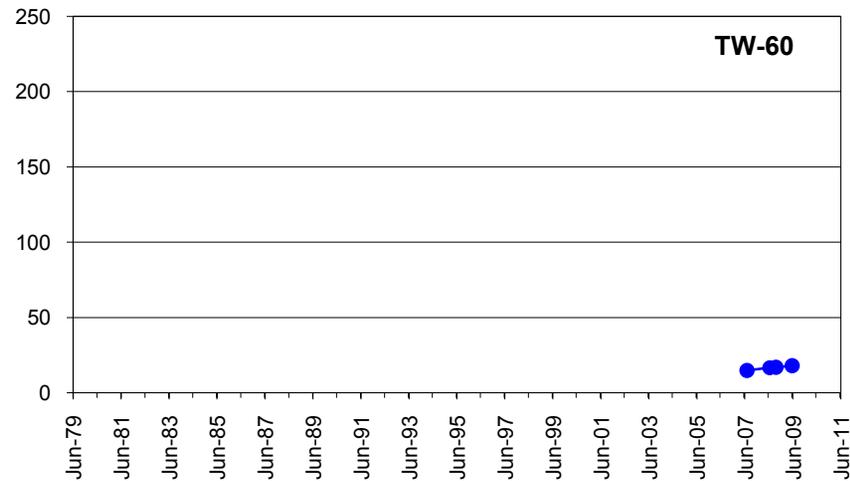
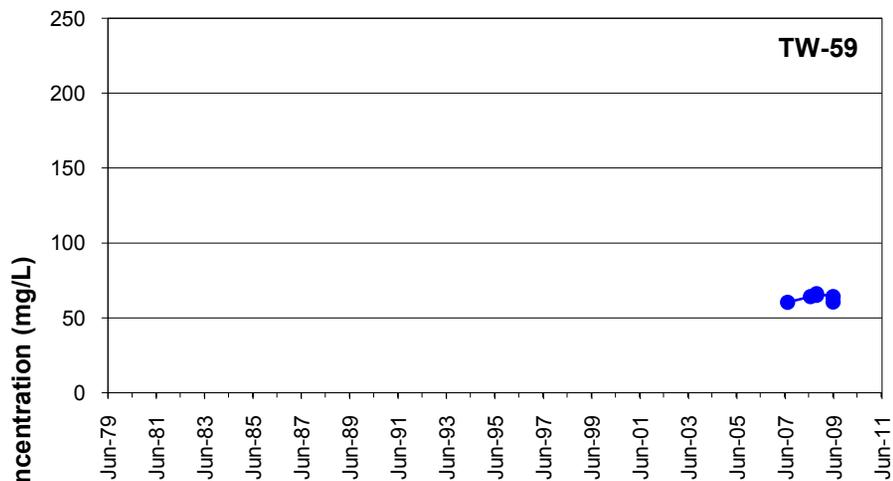
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App F Chloride Charts 2009.xls



TITLE

Chloride in 2007 Monitoring Wells

FIGURE F-15

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

PROJECT Monsanto Groundwater Monitoring

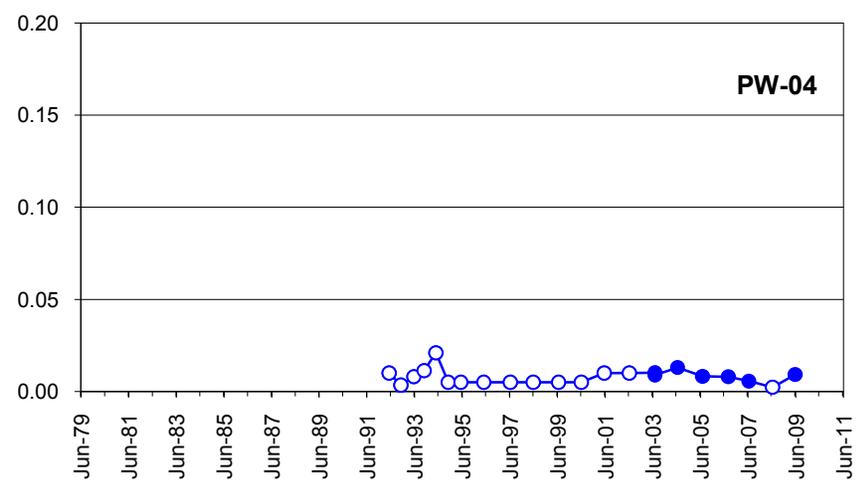
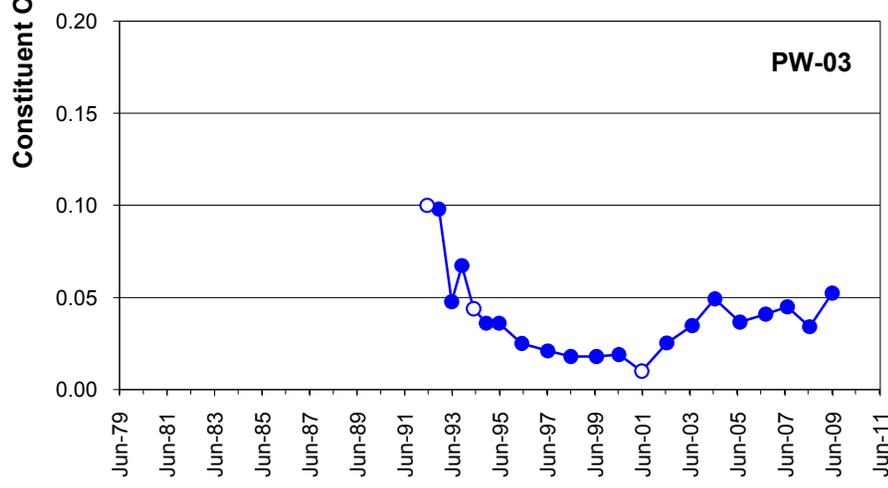
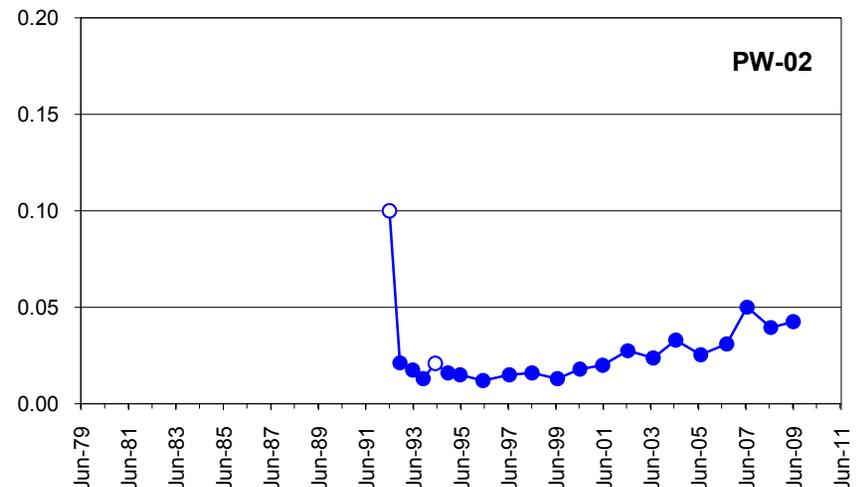
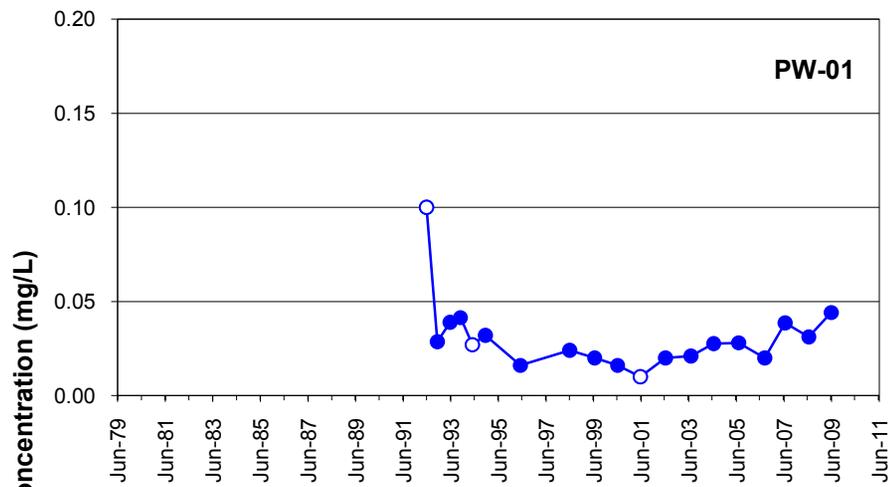
CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

APPENDIX G
TIME-HISTORY GRAPHS FOR MOLYBDENUM

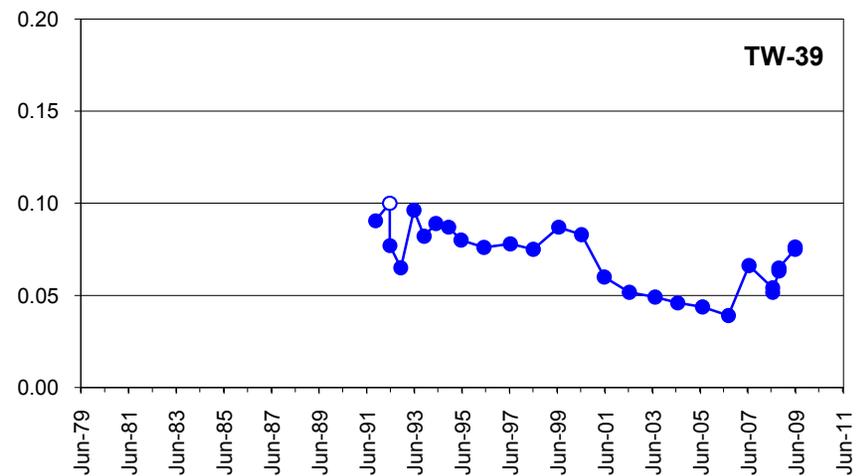
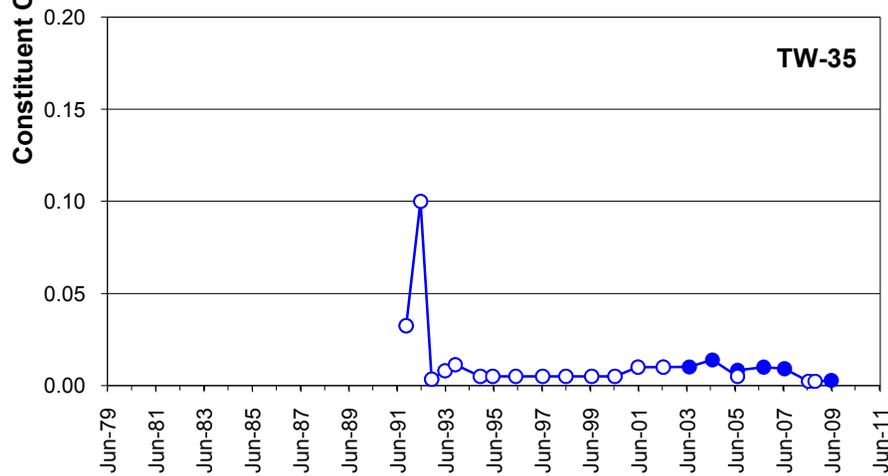
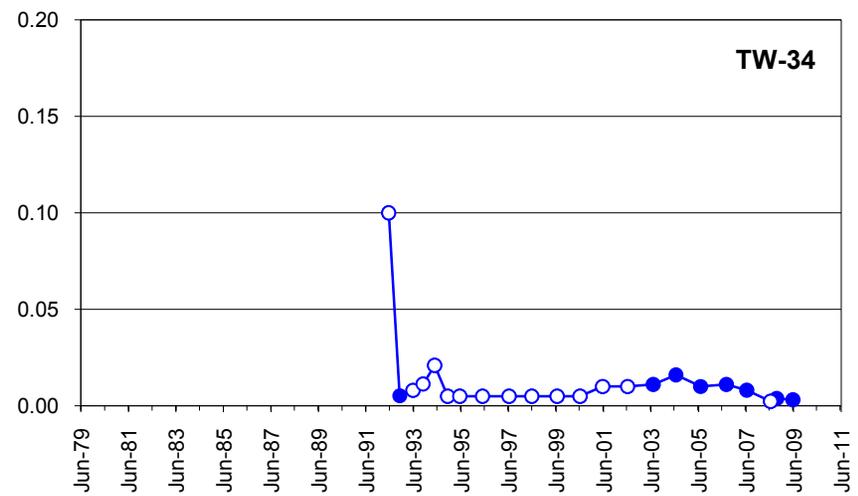
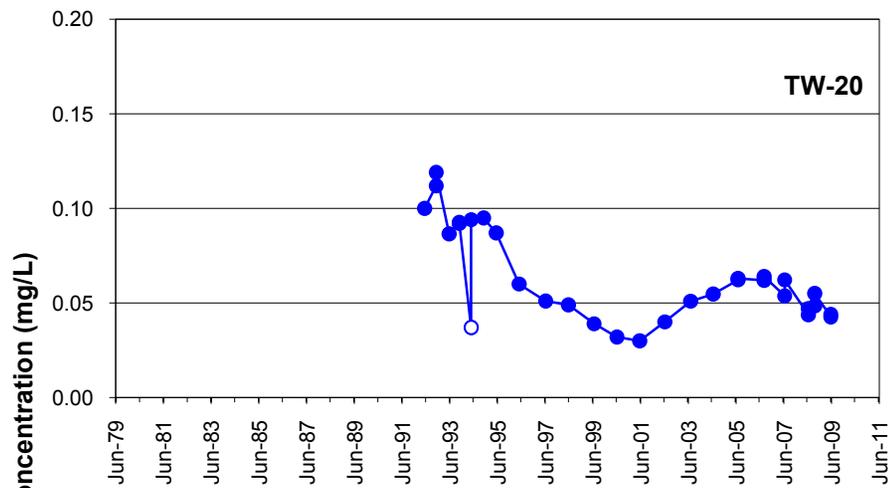


Sample Date

App G Molybdenum Charts 2009.xls



FILE NAME	TITLE		Molybdenum in Production Wells		FIGURE G-1	
			CLIENT	Monsanto Company	DRAWN	FV
			PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED	DB



Sample Date

App G Molybdenum Charts 2009.xls



TITLE

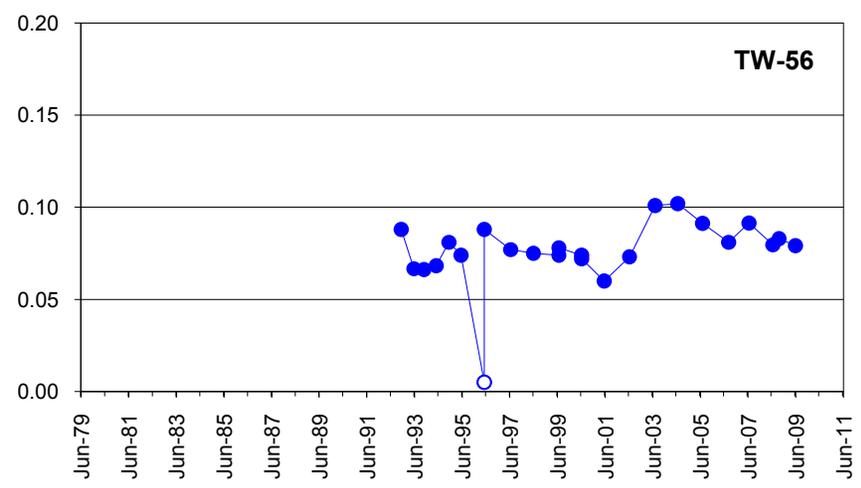
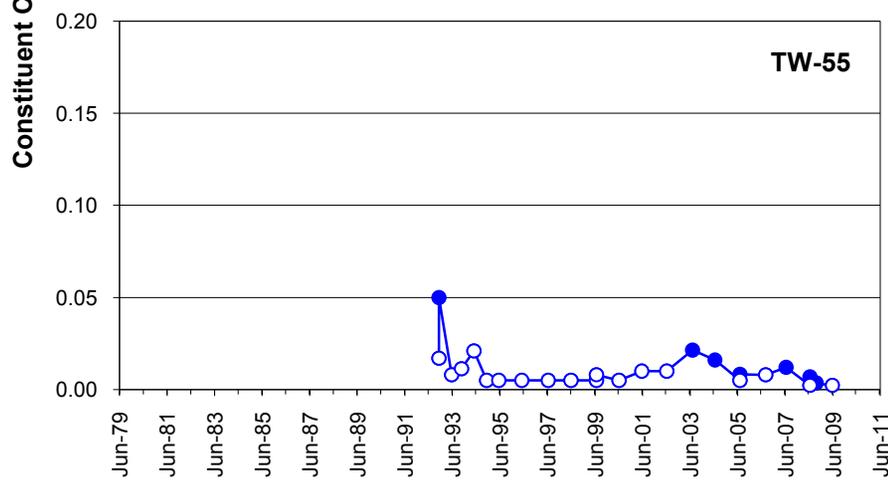
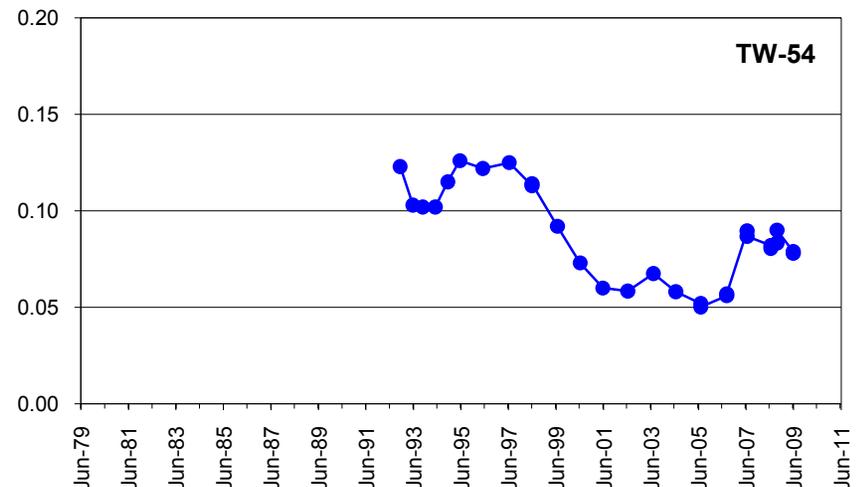
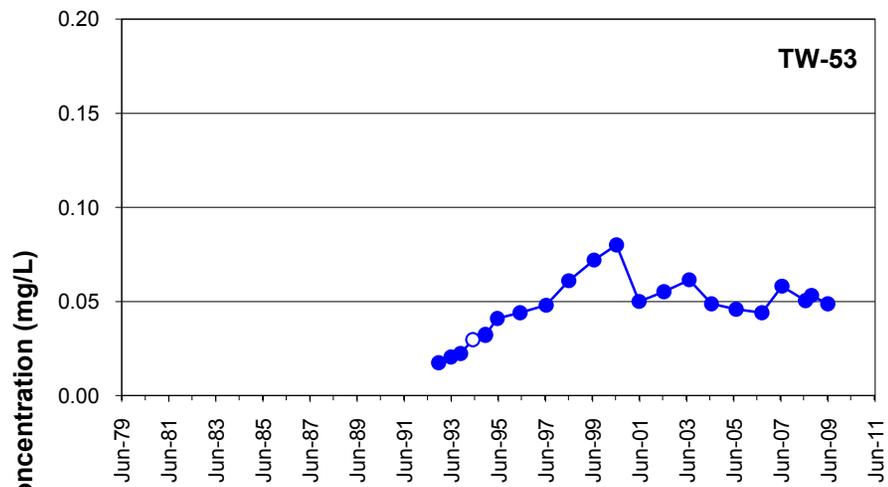
Molybdenum in South Fenceline Wells

FIGURE G-2

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB



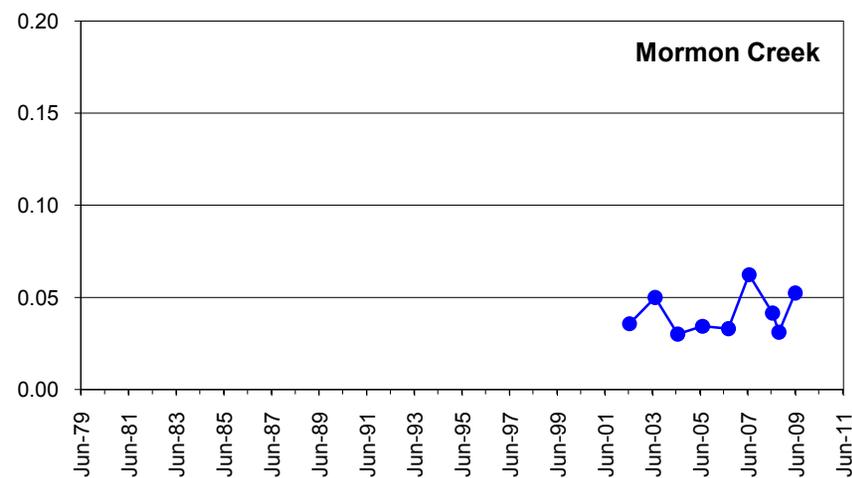
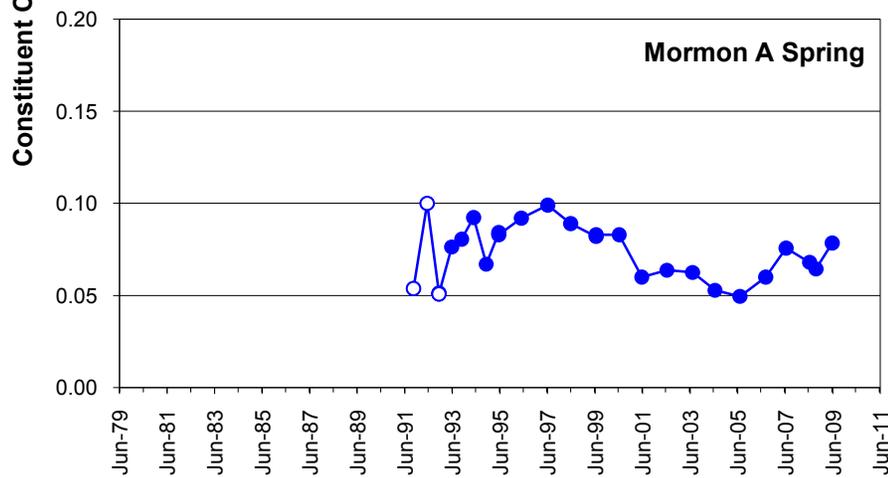
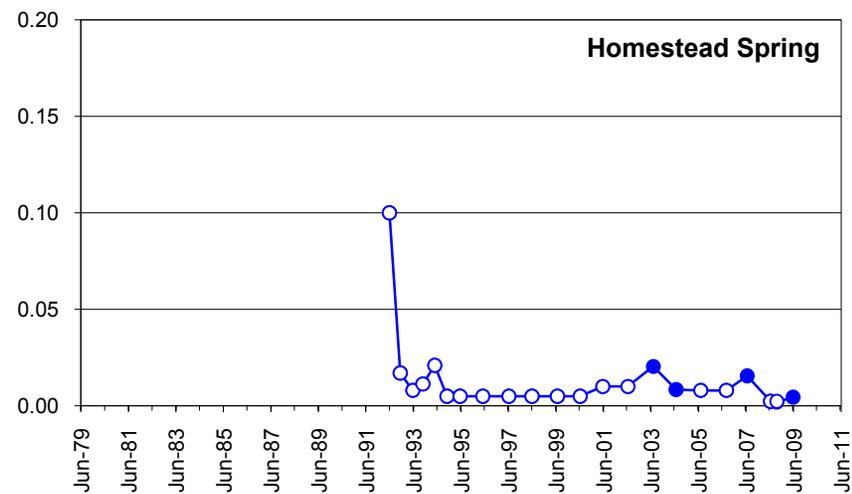
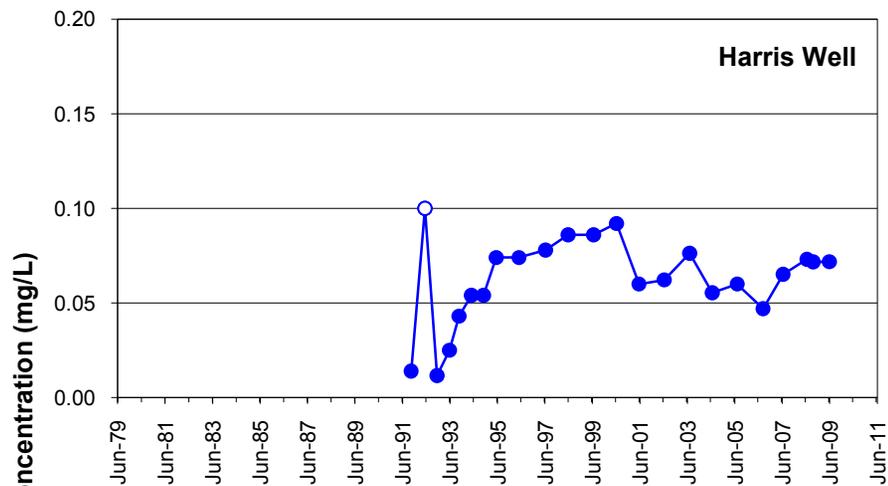
Sample Date

App G Molybdenum Charts 2009.xls



FILE NAME	TITLE		FIGURE
	Molybdenum in Southern Boundary Wells		G-3
	CLIENT	Monsanto Company	DRAWN
			FV
	PROJECT	Monsanto Groundwater Monitoring	CHECKED
			MPK
	PROJECT NO.	913-1101.605A	DATE
			19-Oct-09
			REVIEWED
			DB

● Constituent Concentration (mg/L) ○ Non-Detects



Sample Date

App G Molybdenum Charts 2009.xls



Molybdenum in Harris Well and Springs South of Plant

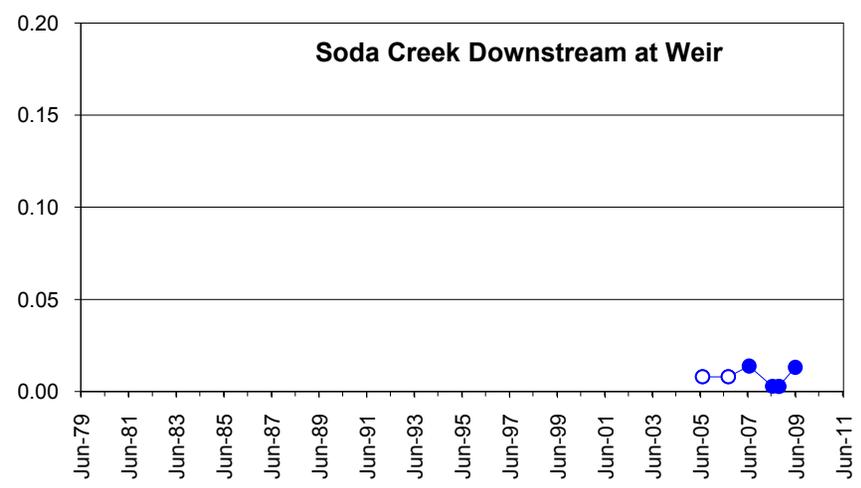
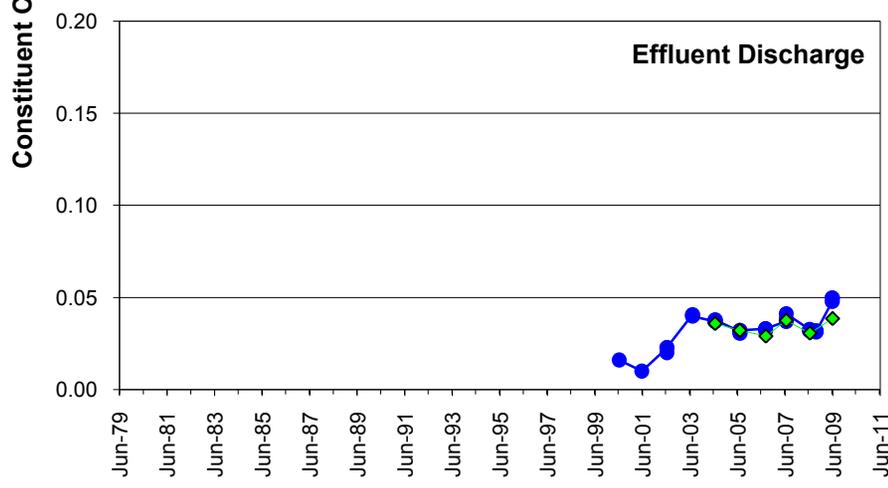
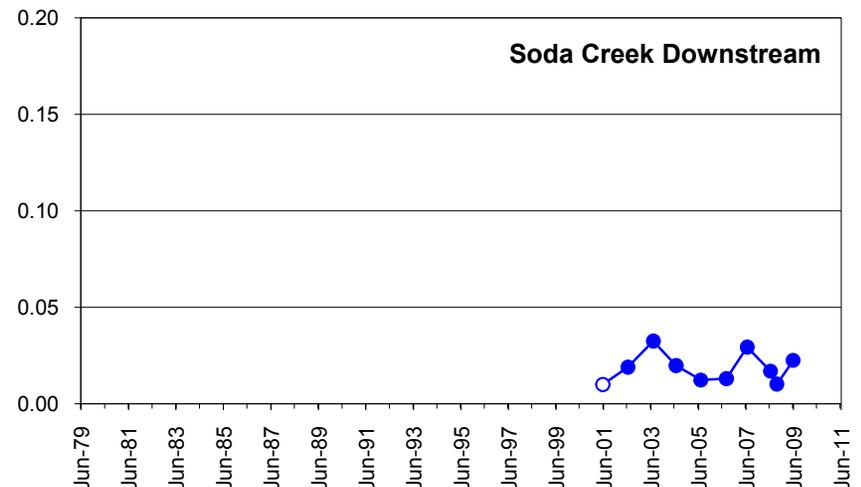
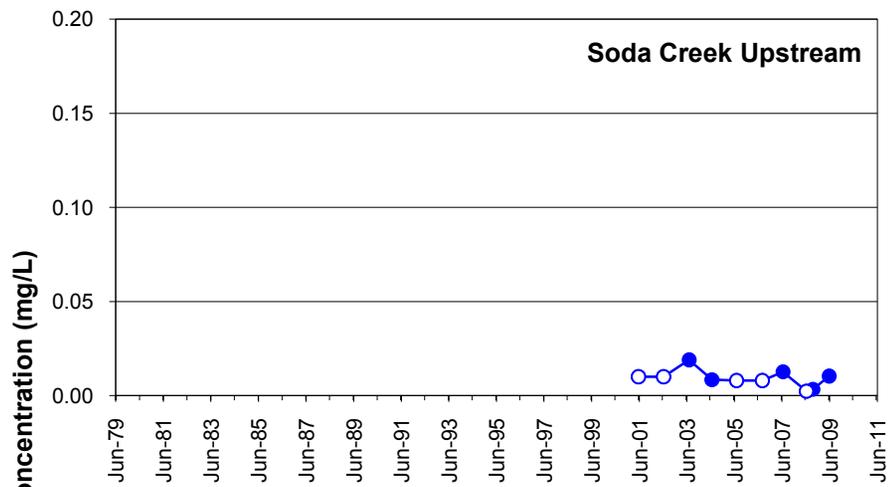
FIGURE G-4

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A

DATE 19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB

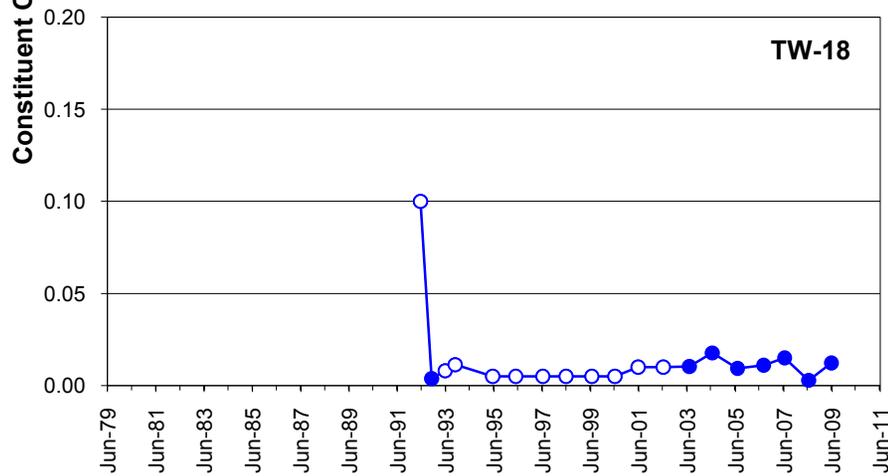
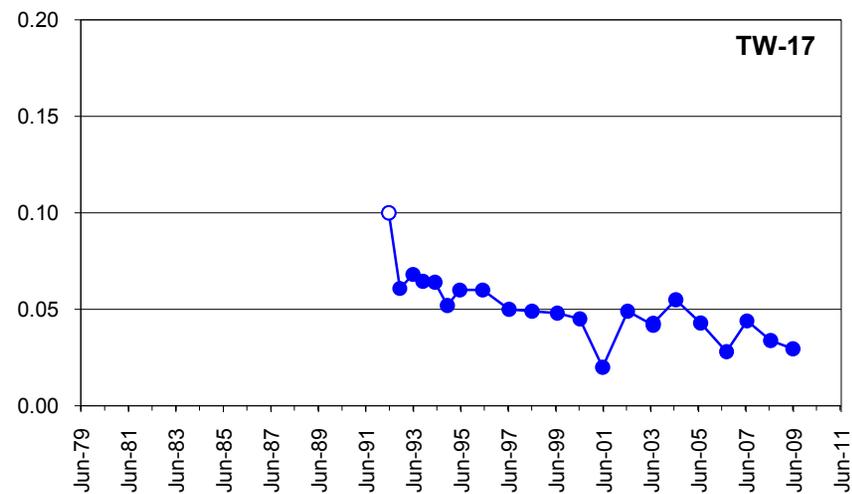
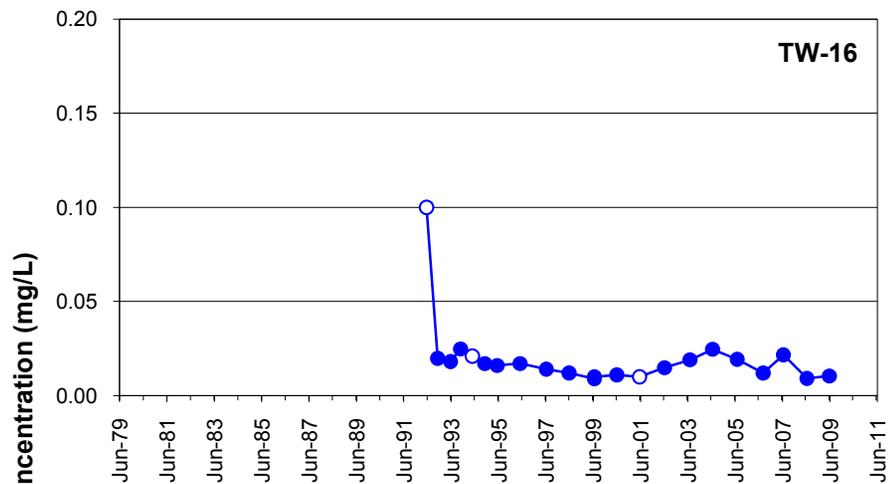


Sample Date

App G Molybdenum Charts 2009.xls



TITLE		Molybdenum in Soda Creek and Effluent Discharge		FIGURE G-5			
<ul style="list-style-type: none"> ● Constituent Concentration (mg/L) ○ Non-Detects ◆ Pond Inlet 		CLIENT	Monsanto Companv		DRAWN	FV	
		PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK	
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED	DB



Sample Date

App G Molybdenum Charts 2009.xls



TITLE

Molybdenum in NW Pond Wells

FIGURE G-6

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

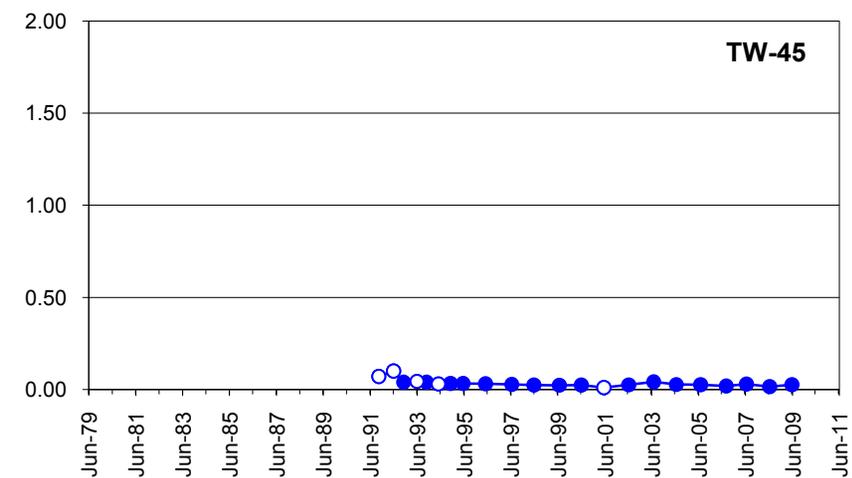
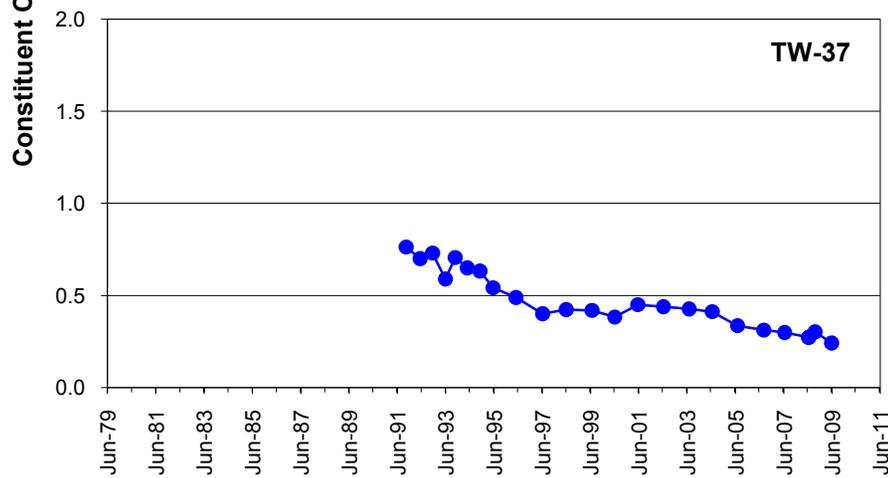
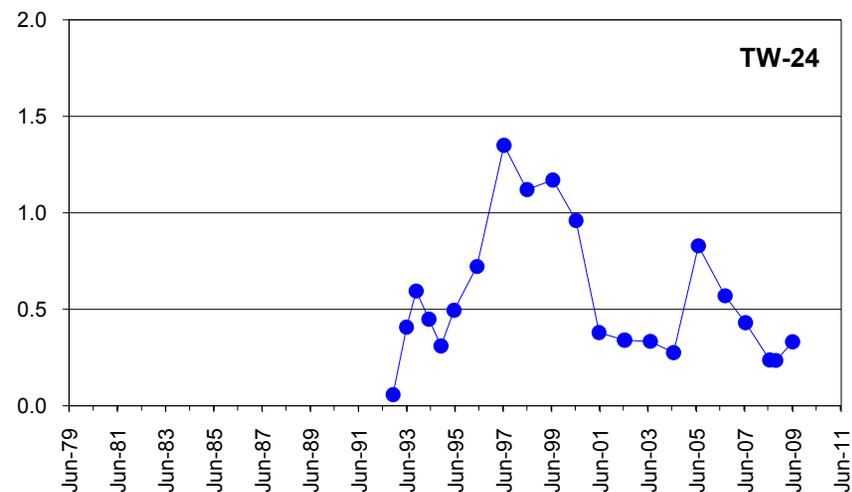
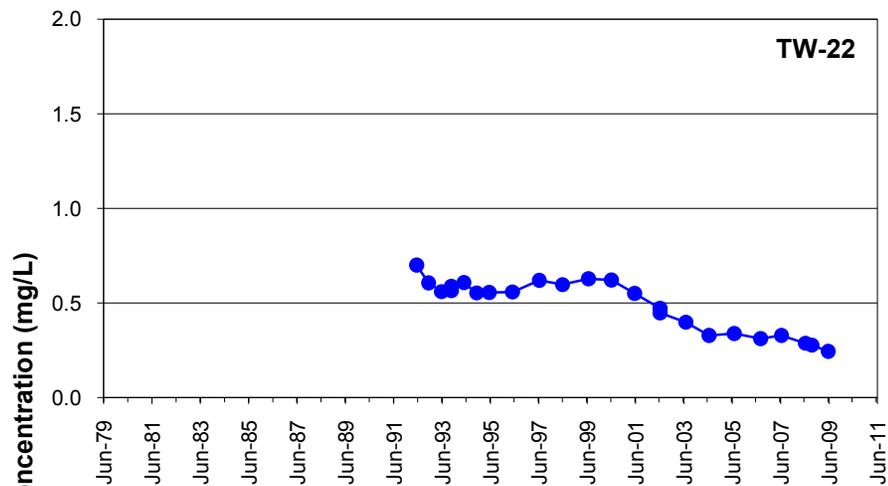
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 19-Oct-09

REVIEWED DB

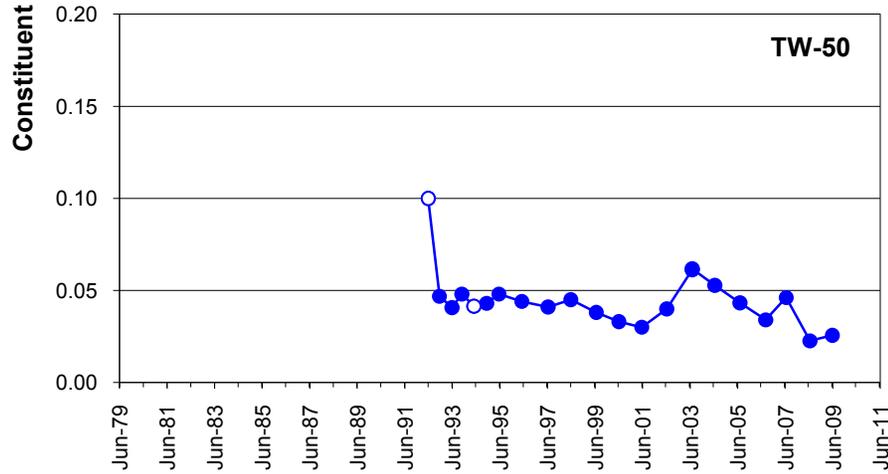
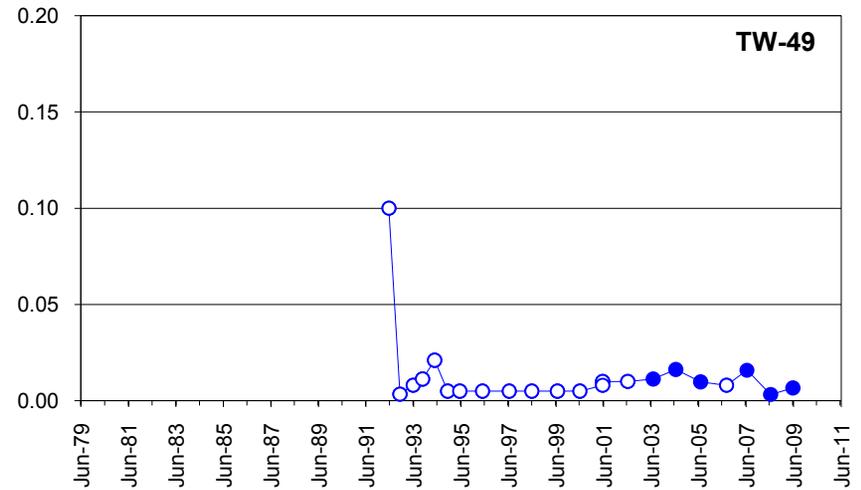
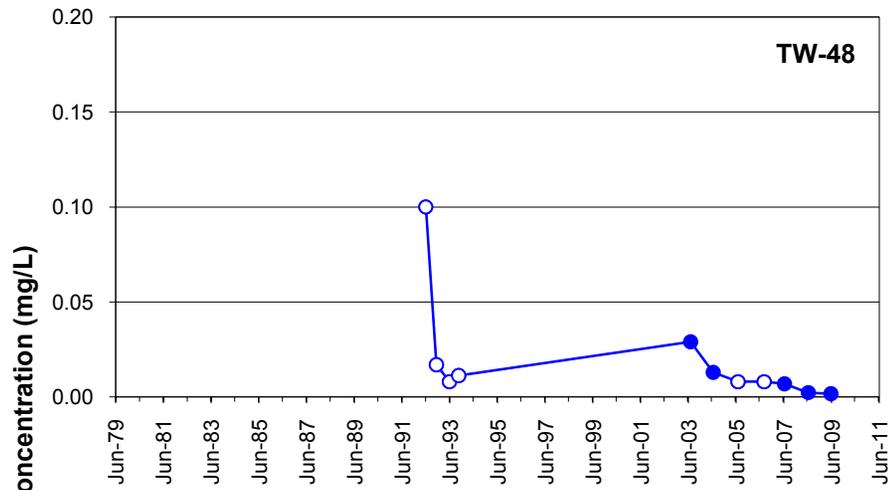


Sample Date

App G Molybdenum Charts 2009.xls



FILE NAME	TITLE		FIGURE G-7	
	Molybdenum in Old Underflow Solids Pond Area Wells		CLIENT	Monsanto Company
			PROJECT	Monsanto Groundwater Monitoring
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09
			DRAWN	FV
			CHECKED	MPK
			REVIEWED	DB

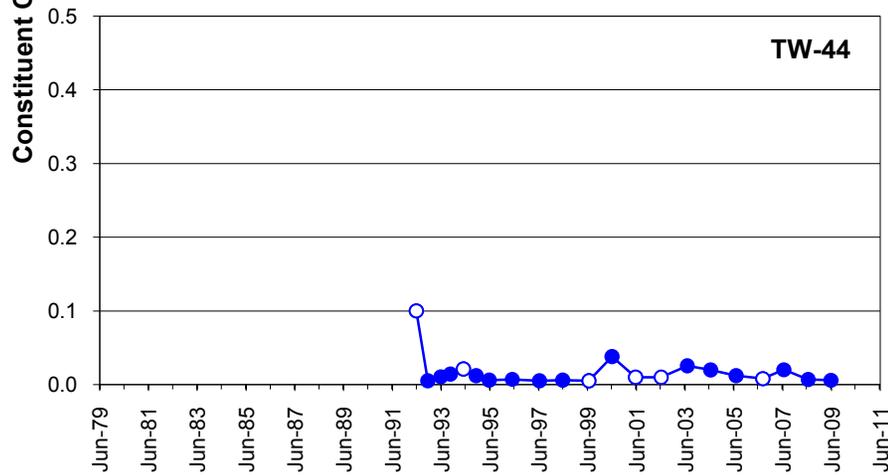
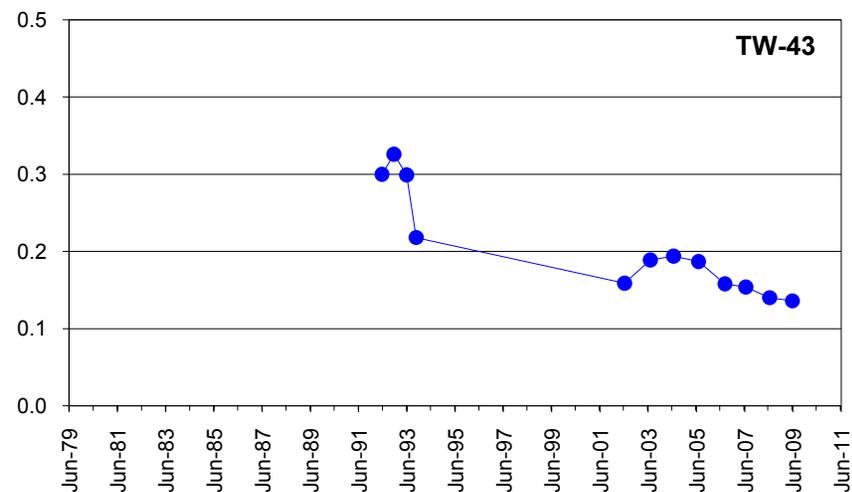
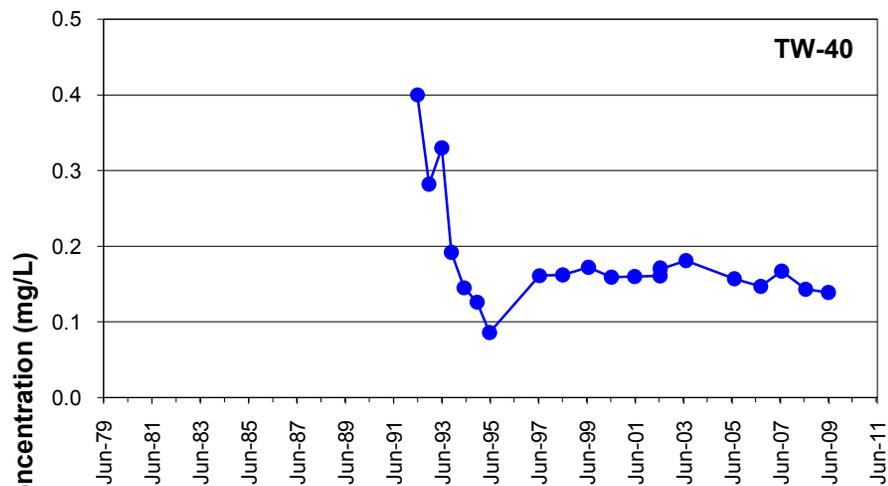


Sample Date

App G Molybdenum Charts 2009.xls

<p>FILE NAME</p> 	<p>TITLE</p> <p style="text-align: center;">Molybdenum in Underflow Solids Piles Area Wells</p>		<p>FIGURE G-8</p>	
	<p>CLIENT</p> <p>Monsanto Company</p>		<p>DRAWN</p> <p>FV</p>	
	<p>PROJECT</p> <p>Monsanto Groundwater Monitoring</p>		<p>CHECKED</p> <p>MPK</p>	
	<p>PROJECT NO.</p> <p>913-1101.605A</p>	<p>DATE</p> <p>19-Oct-09</p>	<p>REVIEWED</p> <p>DB</p>	

● Constituent Concentration (mg/L)
 ○ Non-Detects



Sample Date

App G Molybdenum Charts 2009.xls



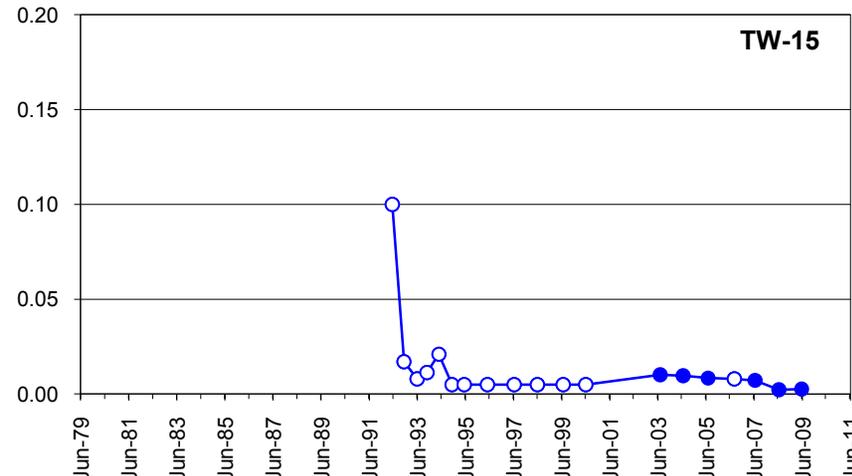
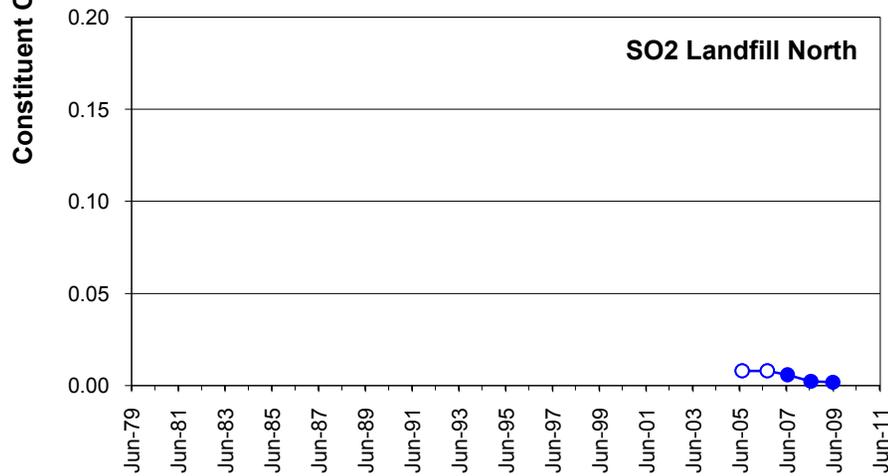
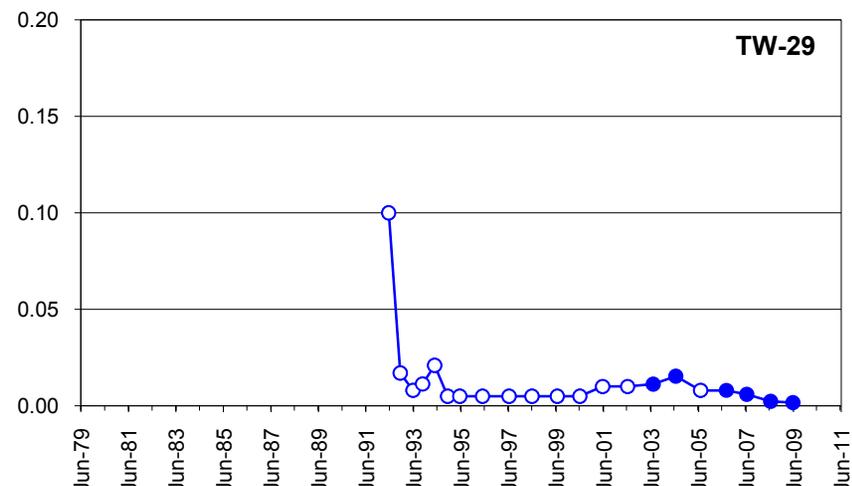
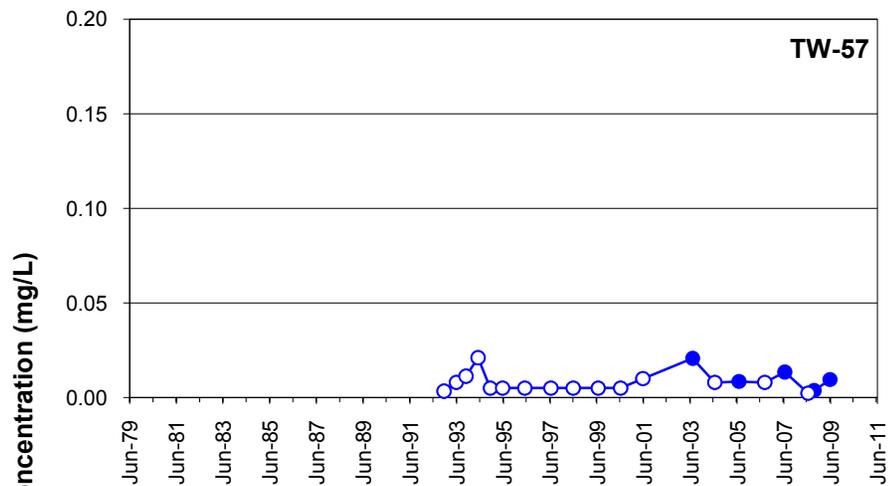
TITLE **Molybdenum in Hydroclarifier Area Wells**

FIGURE **G-9**

—●— Constituent Concentration (mg/L) ○ Non-Detects

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB

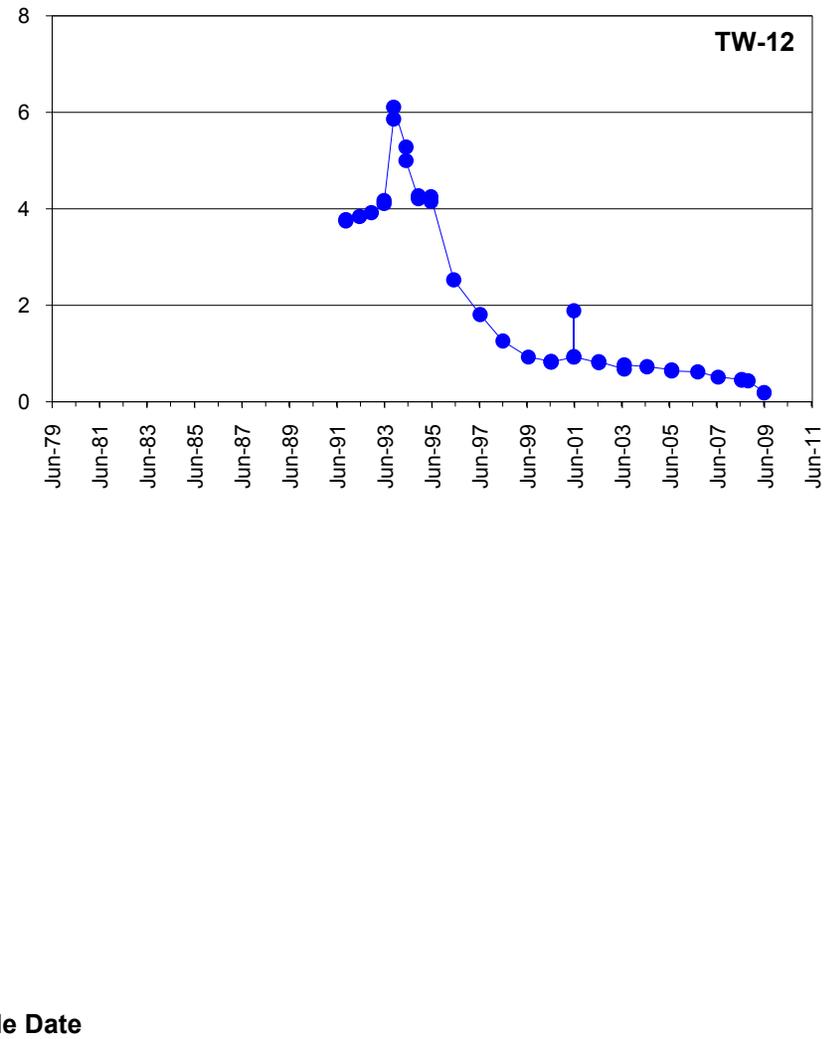
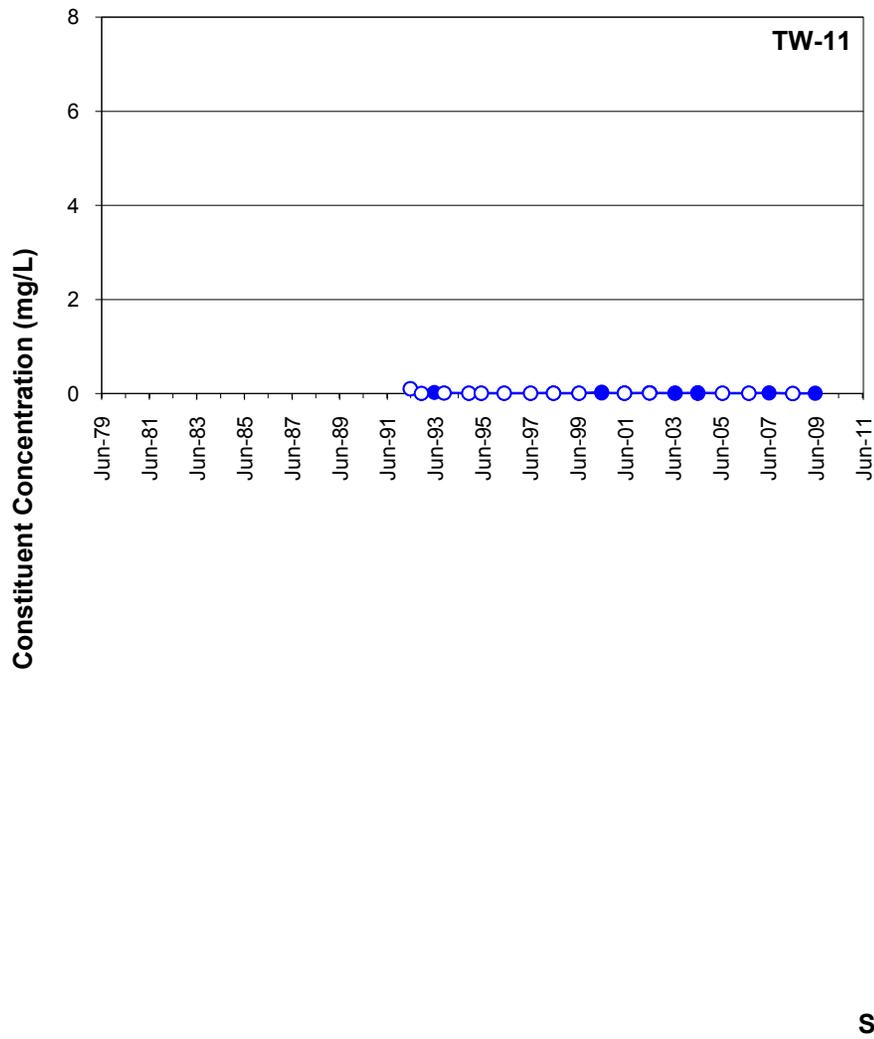


Sample Date

App G Molybdenum Charts 2009.xls



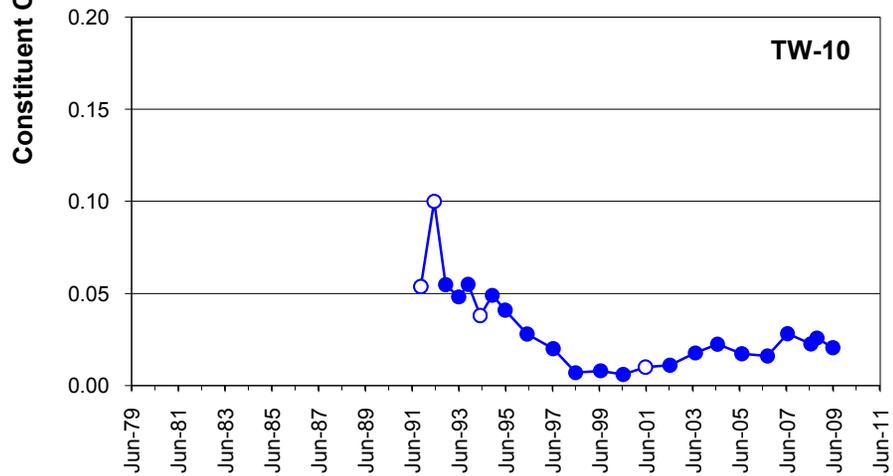
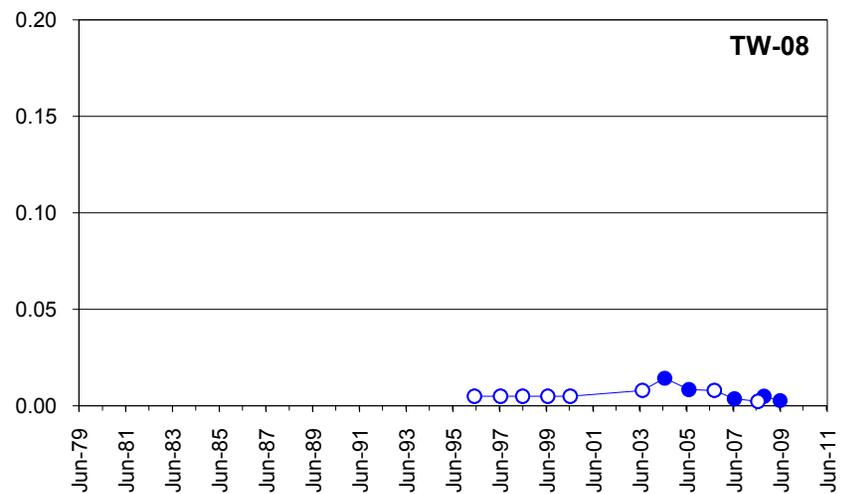
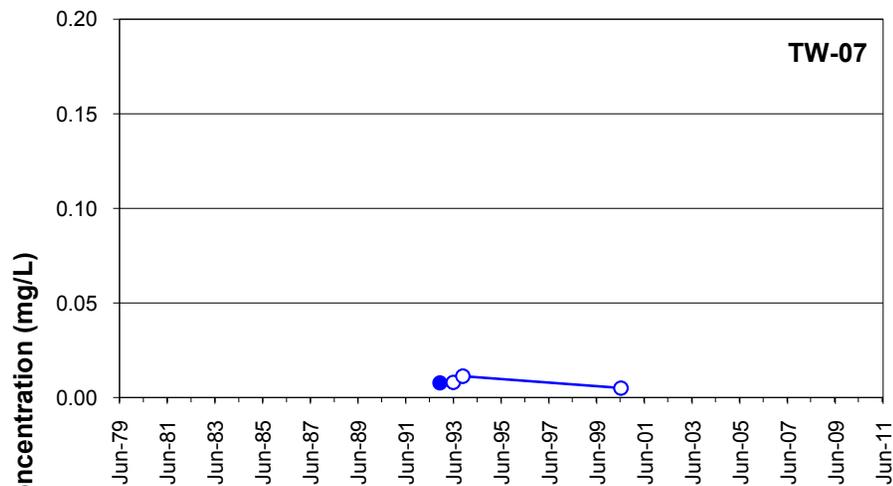
FILE NAME	TITLE		FIGURE G-10	
	Molybdenum in Background Wells		CLIENT	Monsanto Companv
			PROJECT	Monsanto Groundwater Monitoring
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09
			DRAWN	FV
			CHECKED	MPK
			REVIEWED	DB



App G Molybdenum Charts 2009.xls



FILE NAME	TITLE		FIGURE G-11	
	Molybdenum in Southeast Corner Wells		CLIENT	Monsanto Company
			PROJECT	Monsanto Groundwater Monitoring
	CLIENT	Monsanto Company	DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09
			REVIEWED	DB



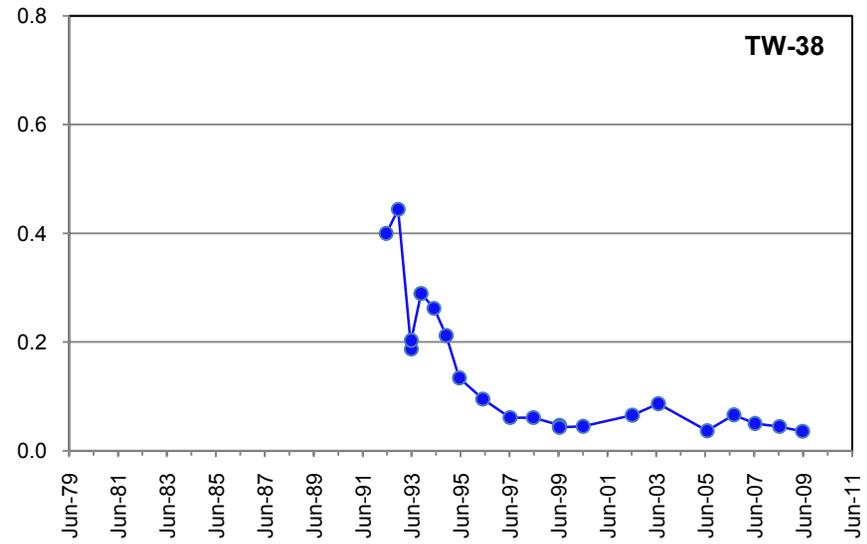
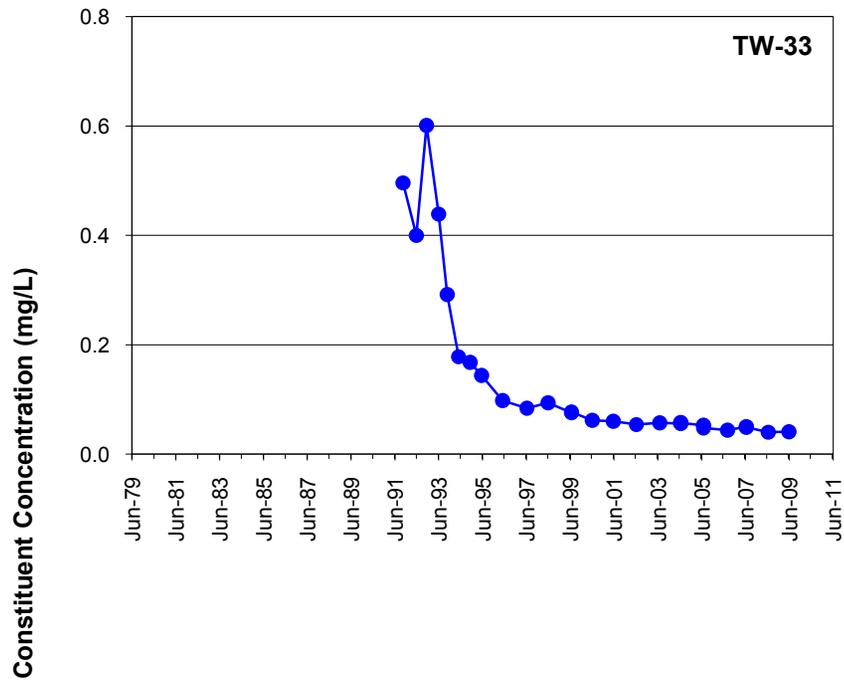
Sample Date

App G Molybdenum Charts 2009.xls



FILE NAME	TITLE		FIGURE G-12	
	Molybdenum in Southwest Corner Wells		CLIENT	Monsanto Companv
			PROJECT	Monsanto Groundwater Monitoring
			PROJECT NO.	913-1101.605A
			DATE	19-Oct-09
			DRAWN	FV
			CHECKED	MPK
			REVIEWED	DB

● Constituent Concentration (mg/L) ○ Non-Detects

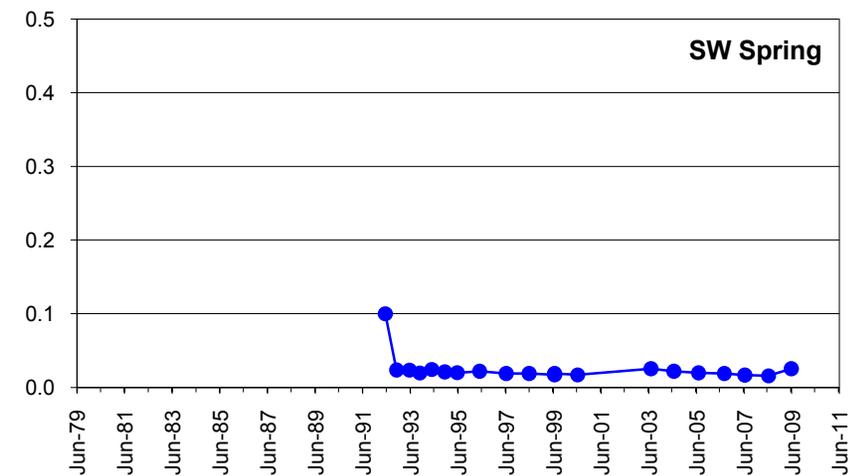
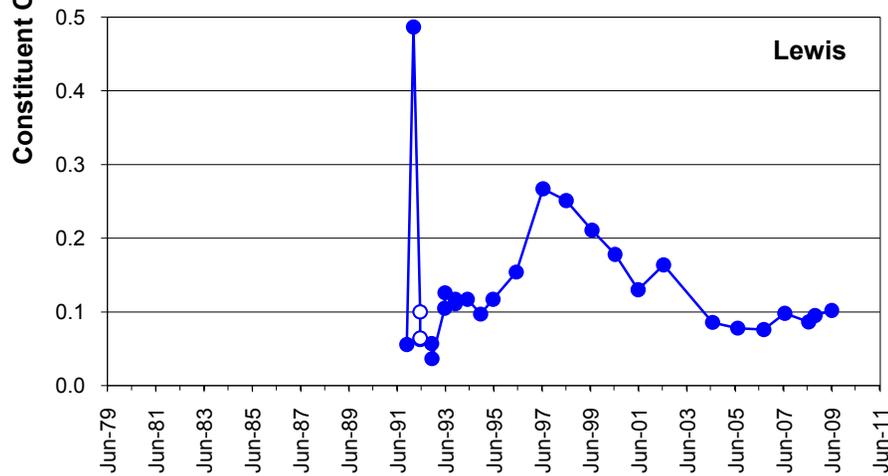
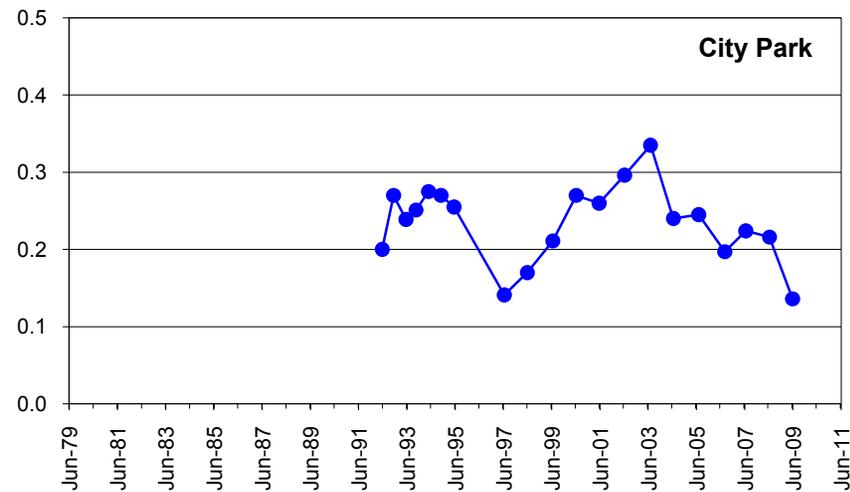
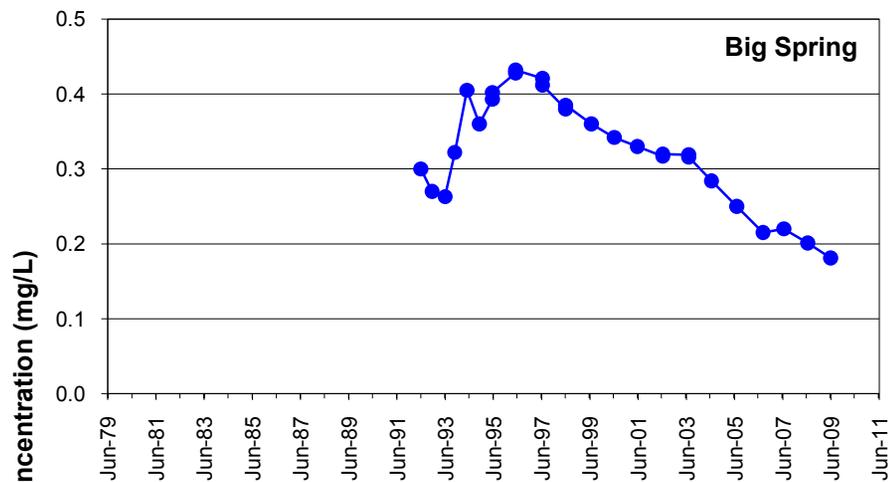


Sample Date

FILE NAME App G Molybdenum Charts 2009.xls



TITLE		Molybdenum in East Wells		FIGURE G-13	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED



Sample Date

App G Molybdenum Charts 2009.xls



TITLE **Molybdenum in Offsite Wells and Springs**

FIGURE G-14

● Constituent Concentration (mg/L) ○ Non-Detects

CLIENT Monsanto Company

DRAWN FV

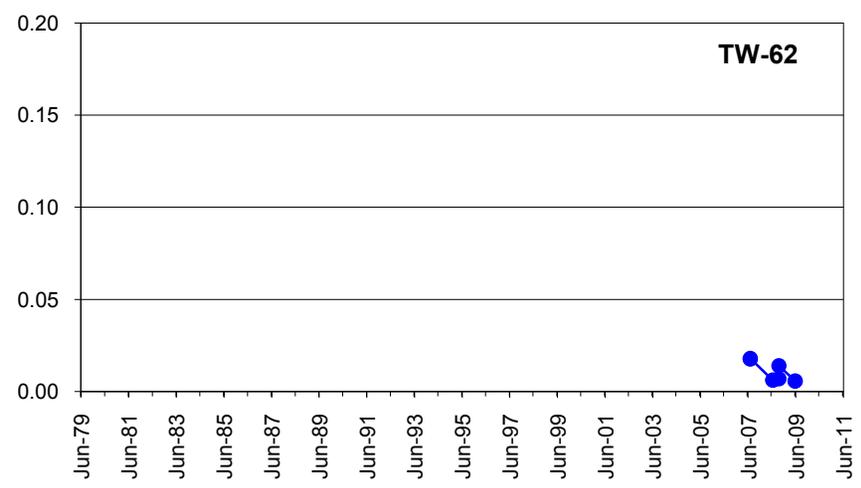
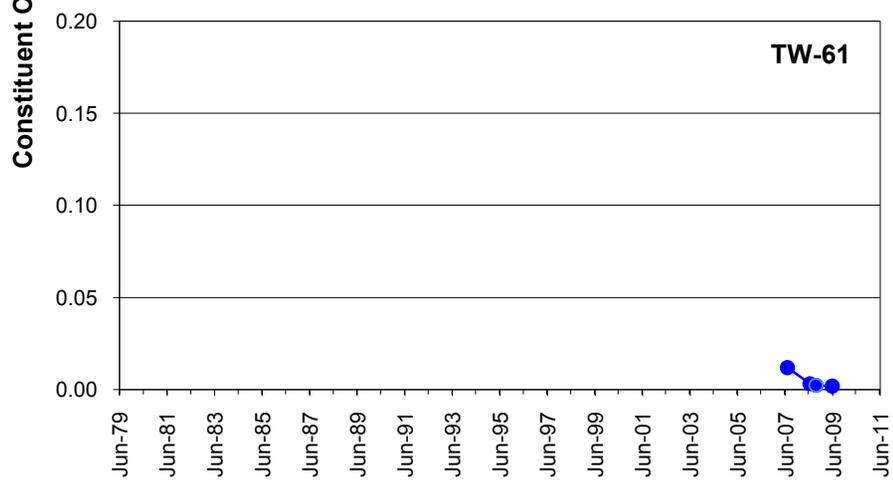
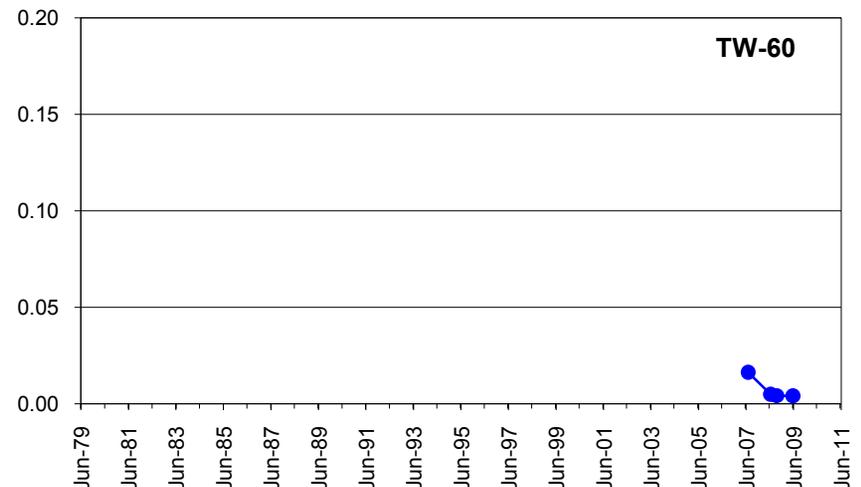
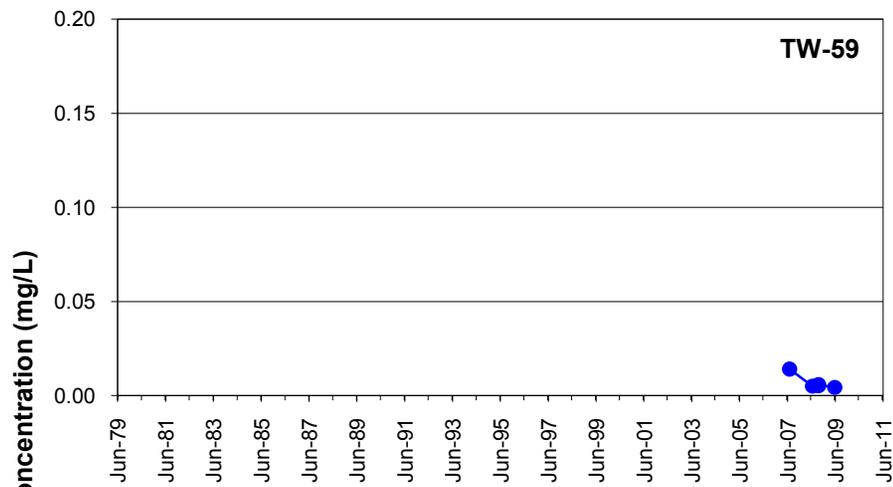
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 19-Oct-09

REVIEWED DB



Sample Date

App G Molybdenum Charts 2009.xls



TITLE **Molybdenum in 2007 Monitoring Wells**

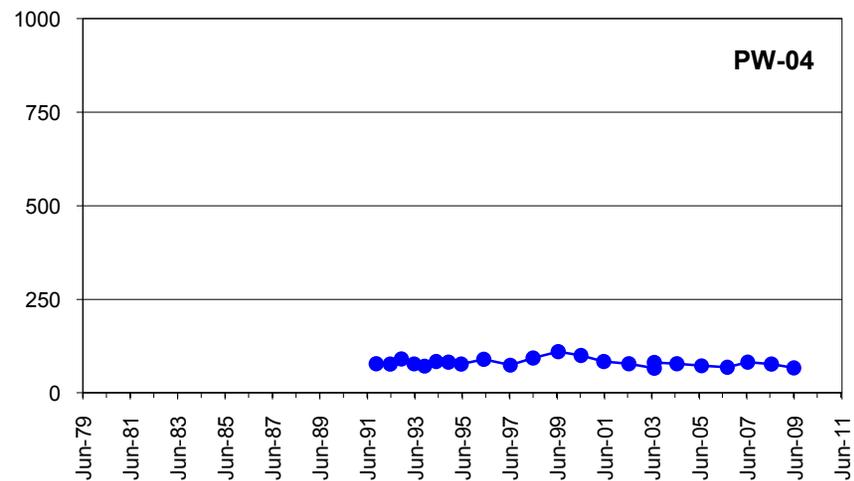
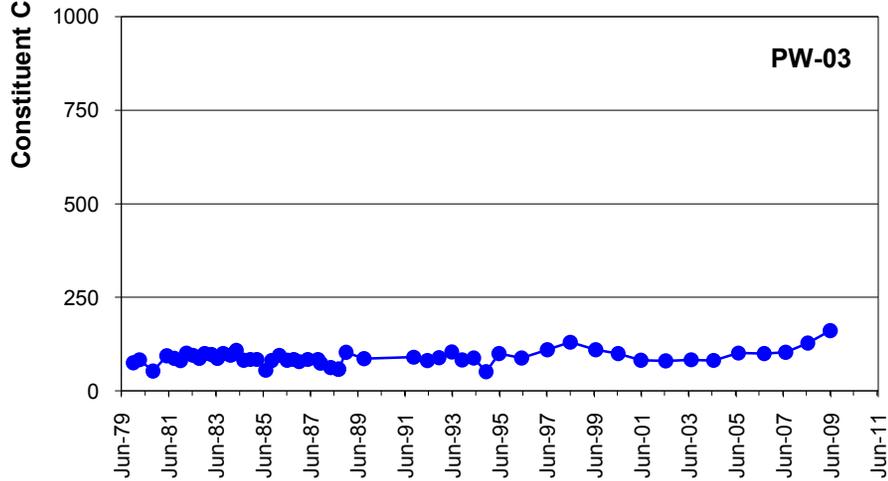
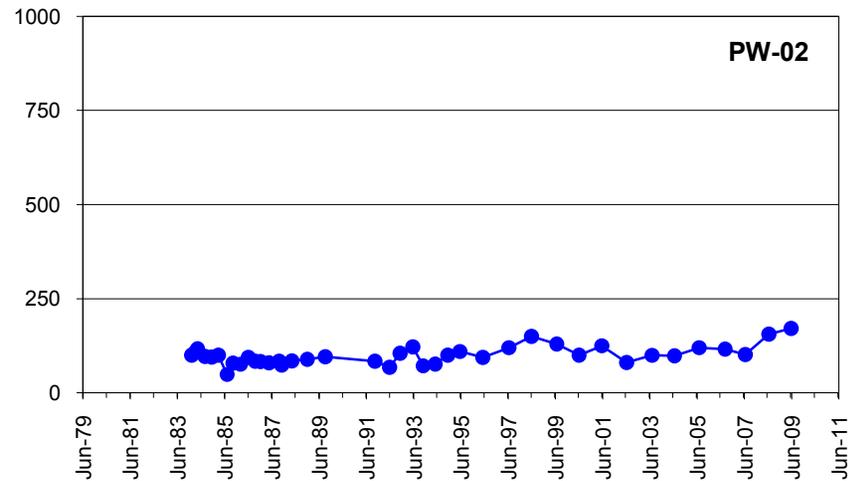
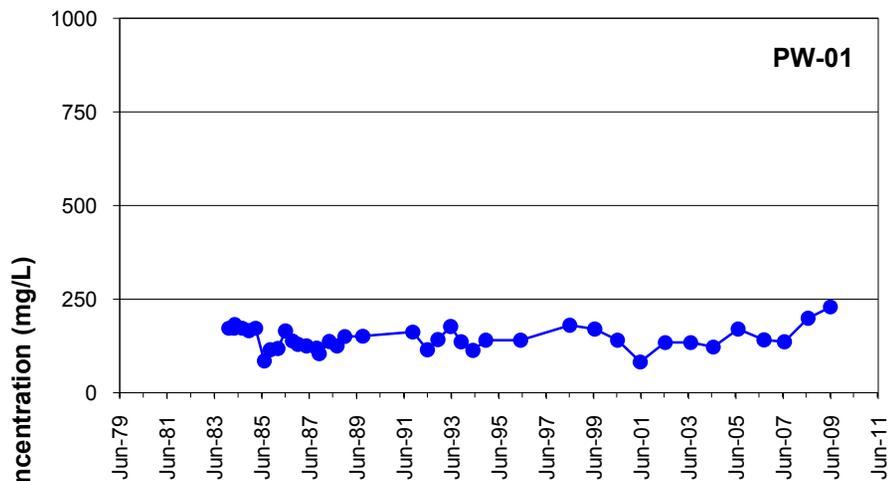
FIGURE G-15

—●— Constituent Concentration (mg/L)

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB

APPENDIX H
TIME-HISTORY GRAPHS FOR SULFATE



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



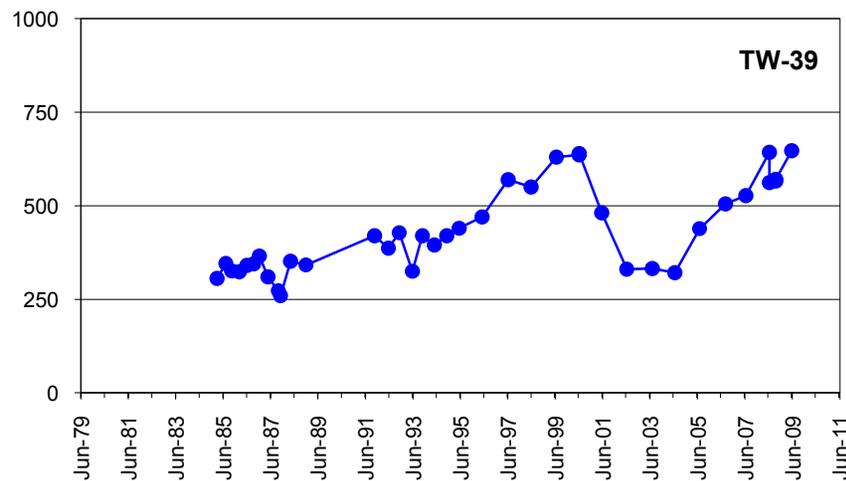
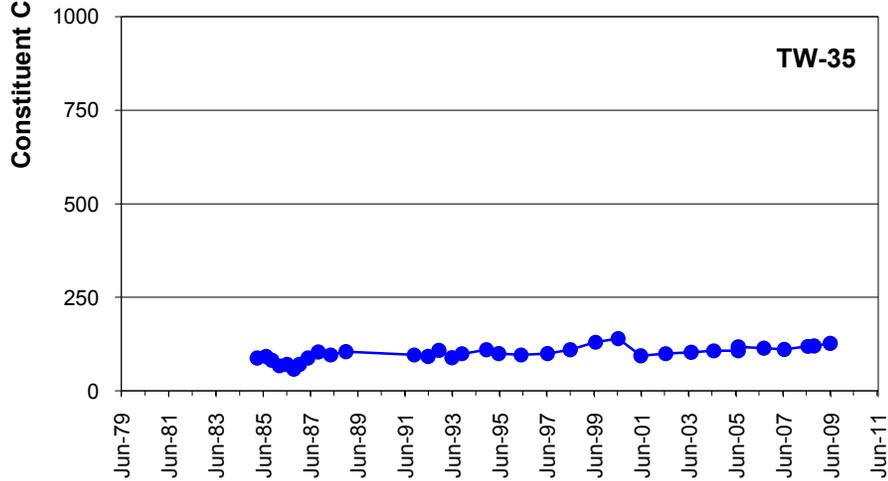
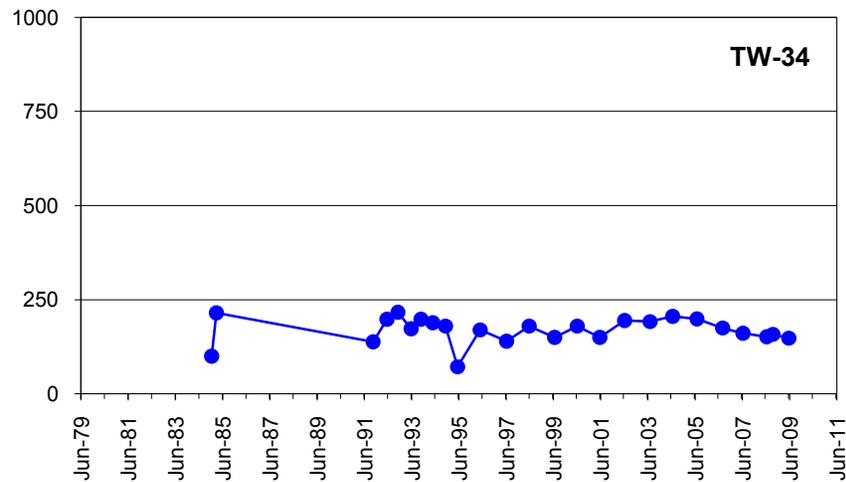
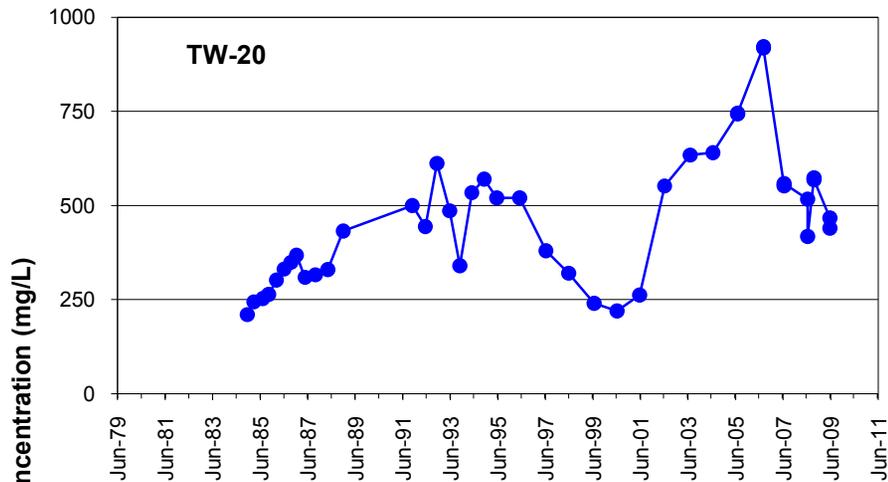
TITLE

Sulfate in Production Wells

FIGURE H-1

● Constituent Concentration (mg/L)

CLIENT	Monsanto Company	DRAWN	FV
PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
PROJECT NO.	913-1101.605A	DATE	3-Sep-09
		REVIEWED	DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in South Fenceline Wells

FIGURE H-2

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

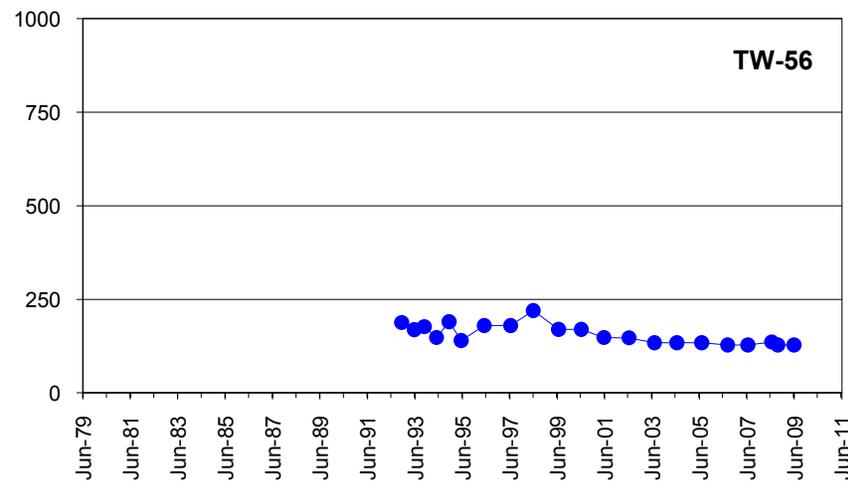
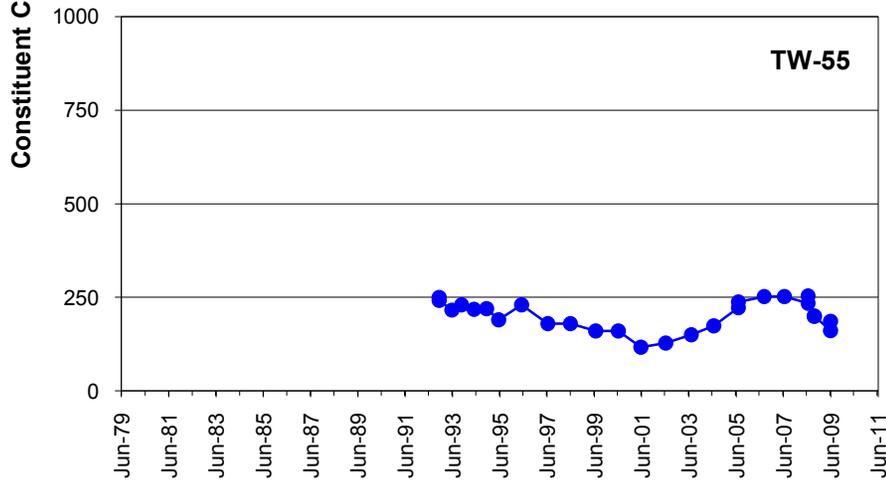
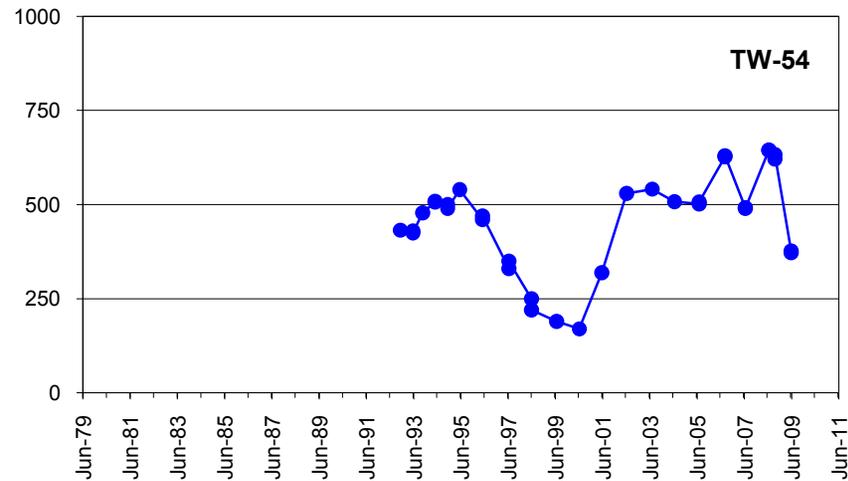
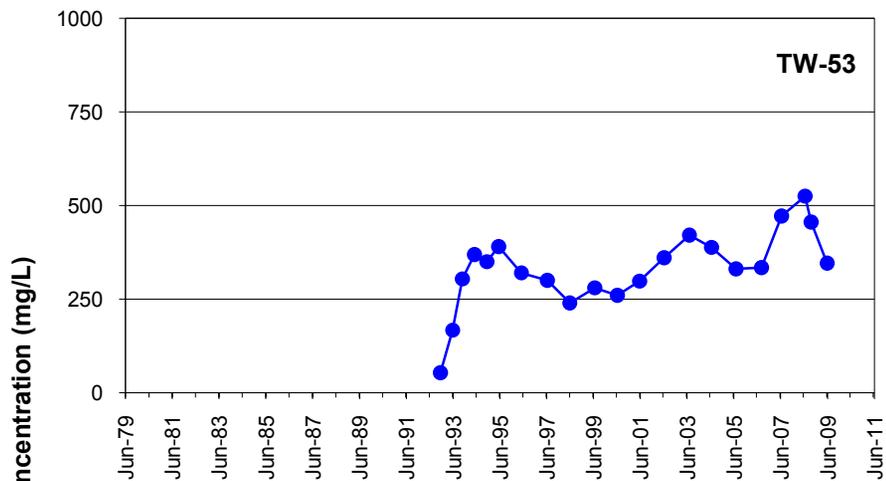
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Southern Boundary Wells

FIGURE H-3

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

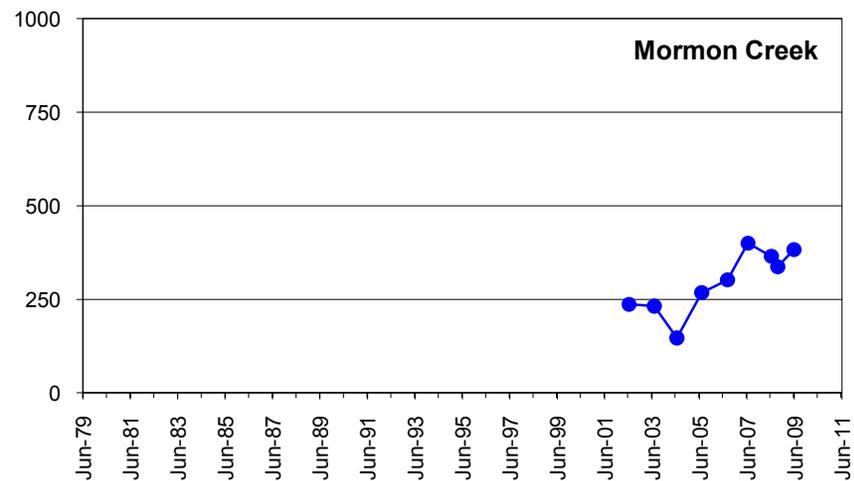
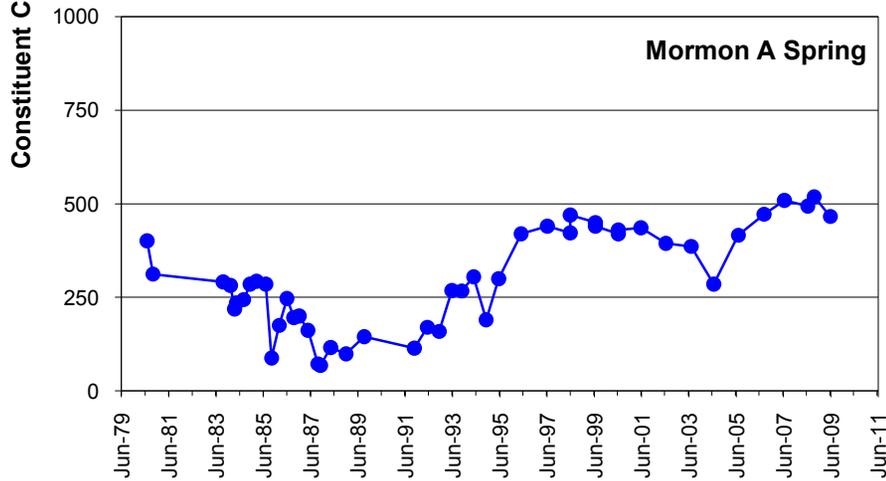
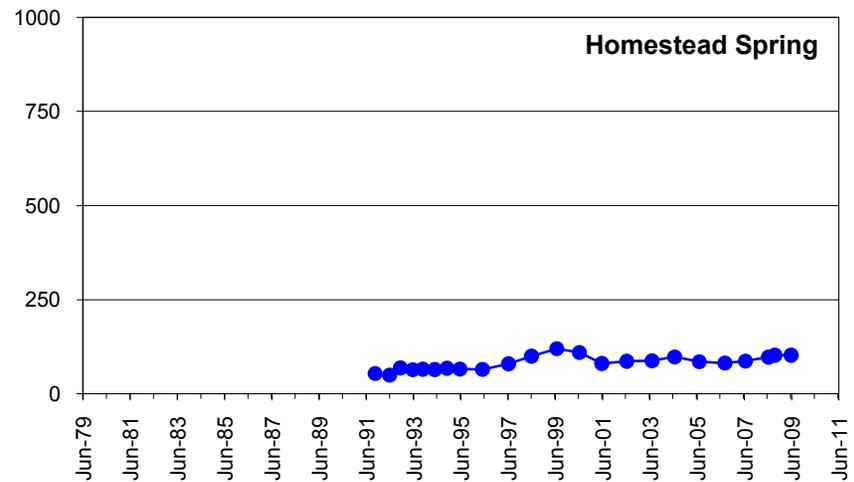
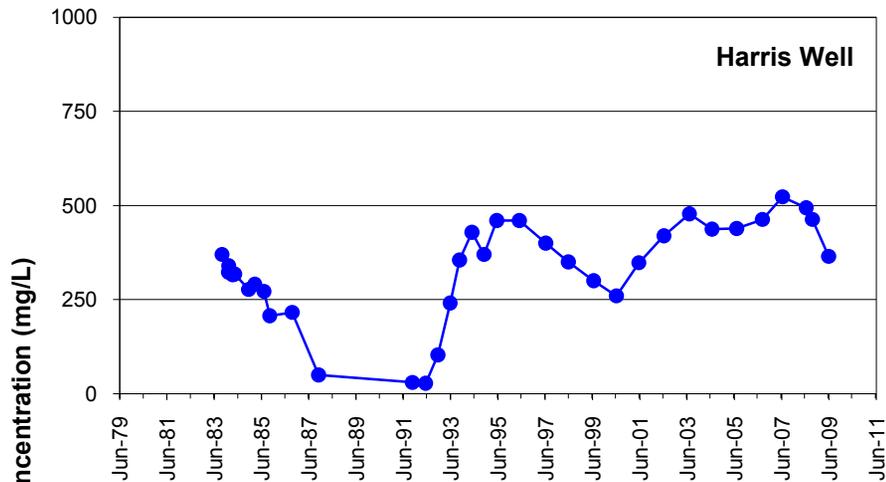
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Harris Well and Springs South of Plant

FIGURE H-4

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

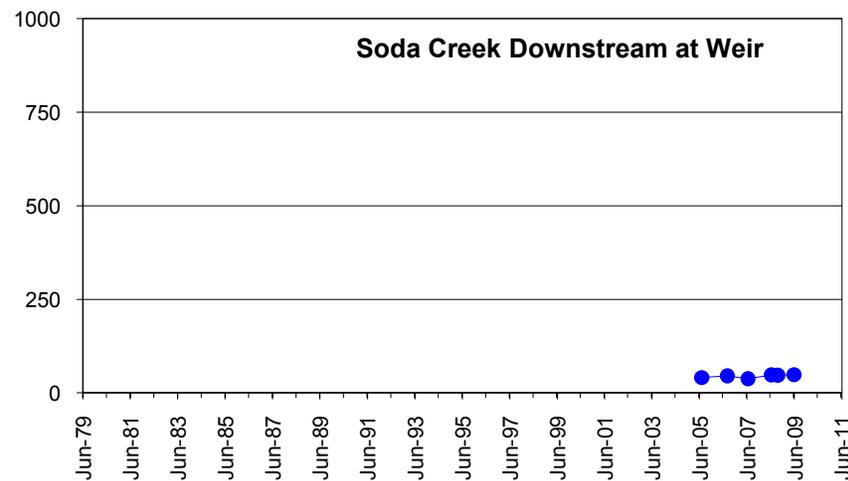
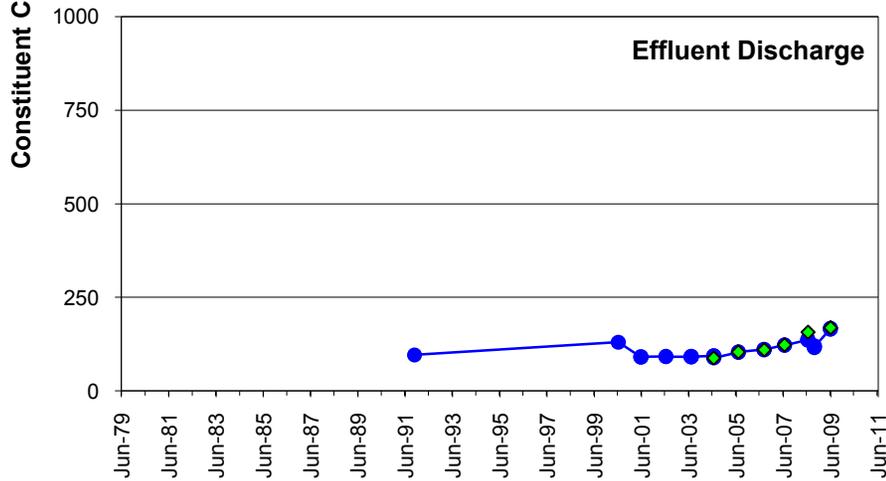
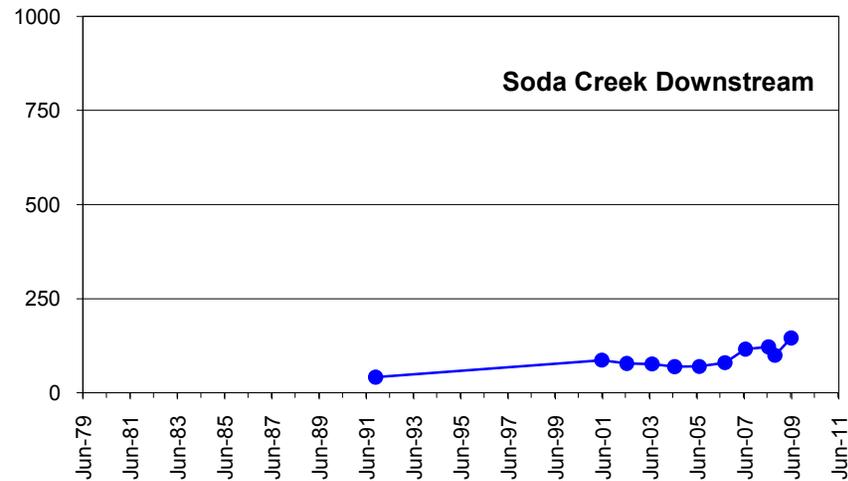
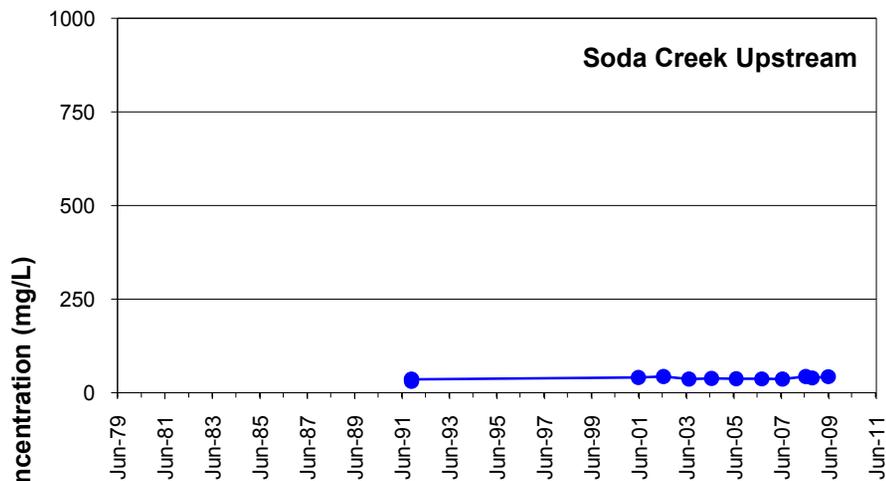
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

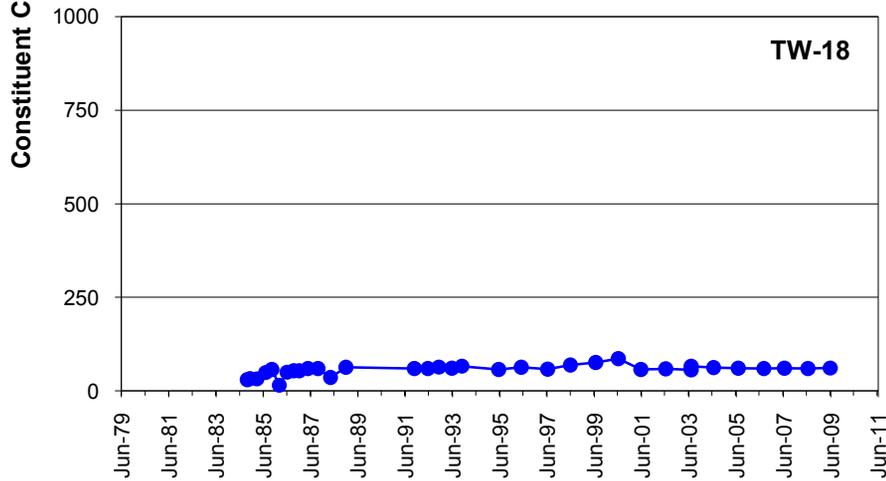
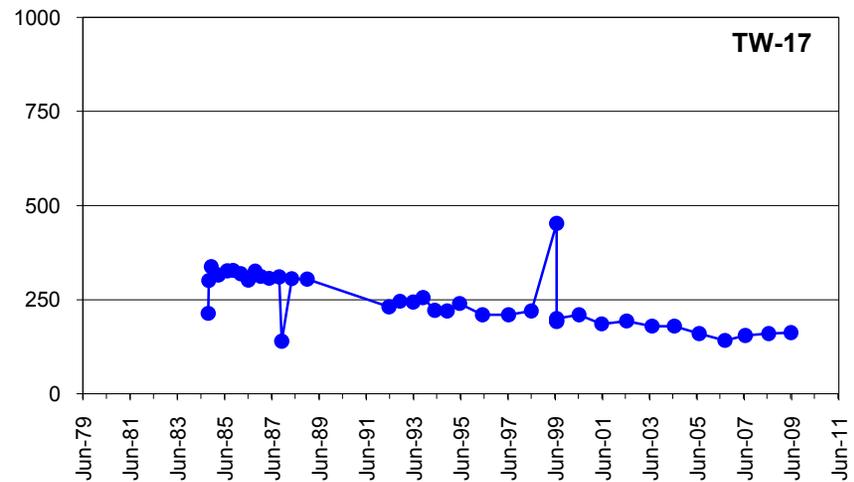
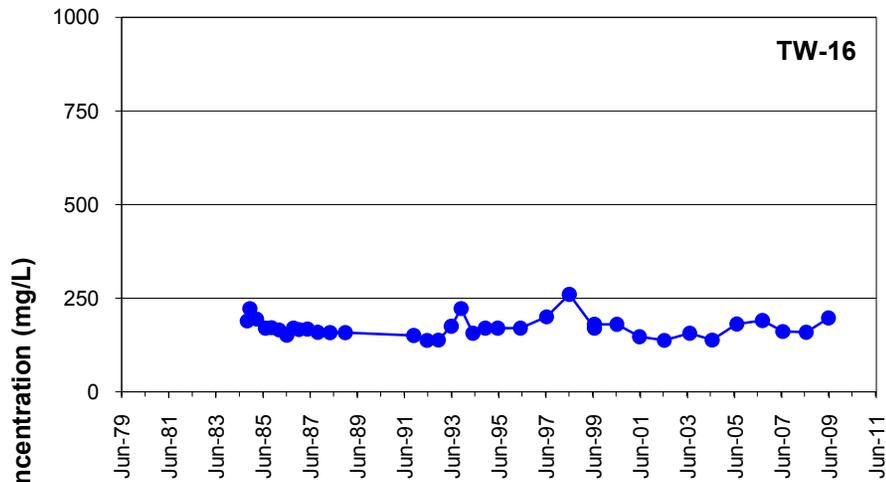


Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE		Sulfate in Soda Creek and Effluent Discharge		FIGURE H-5	
		CLIENT	Monsanto Companv	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	3-Sep-09
				REVIEWED	DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in NW Pond Wells

FIGURE H-6

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

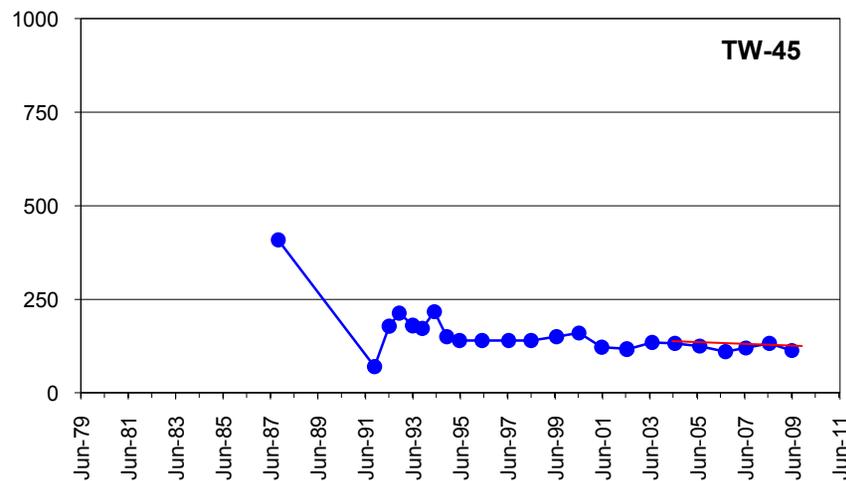
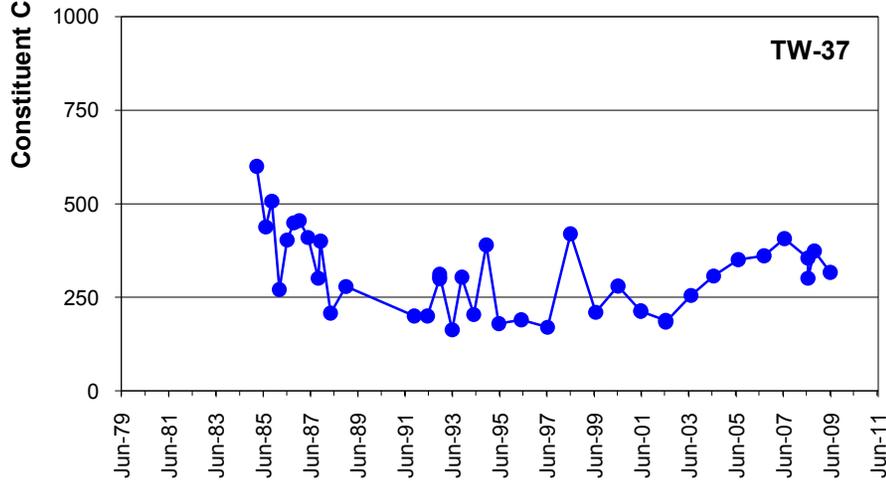
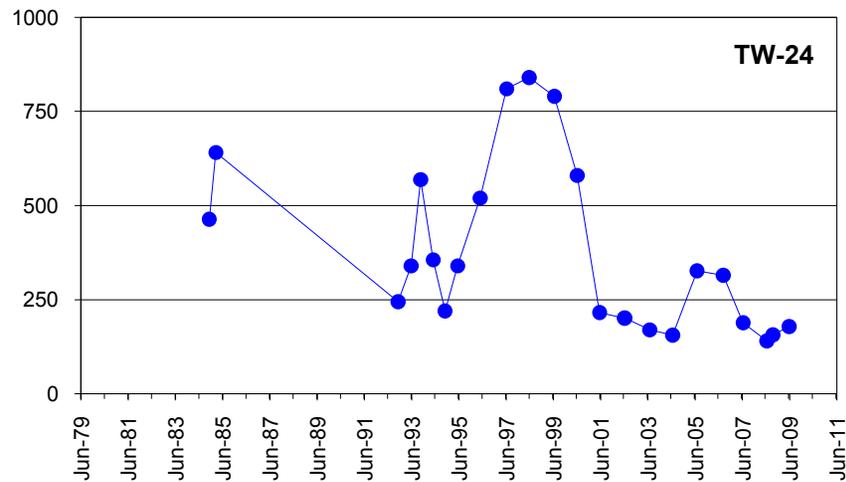
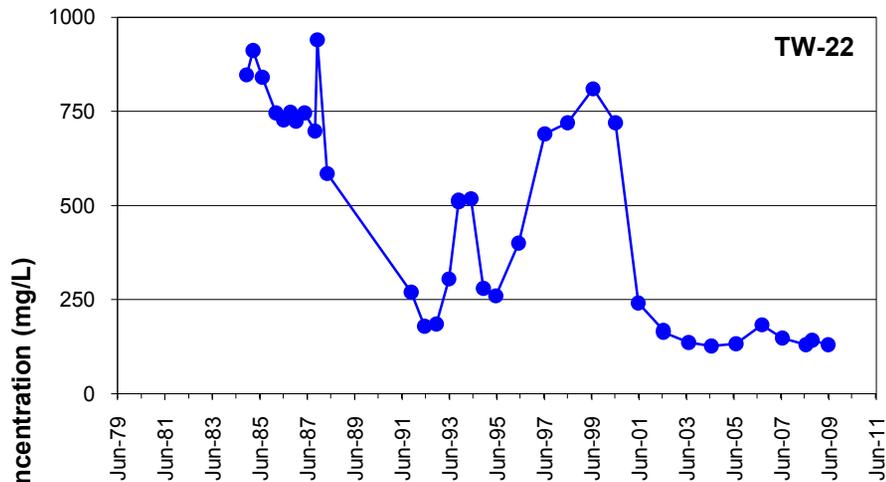
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Old Underflow Solids Pond Area Wells

FIGURE H-7

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

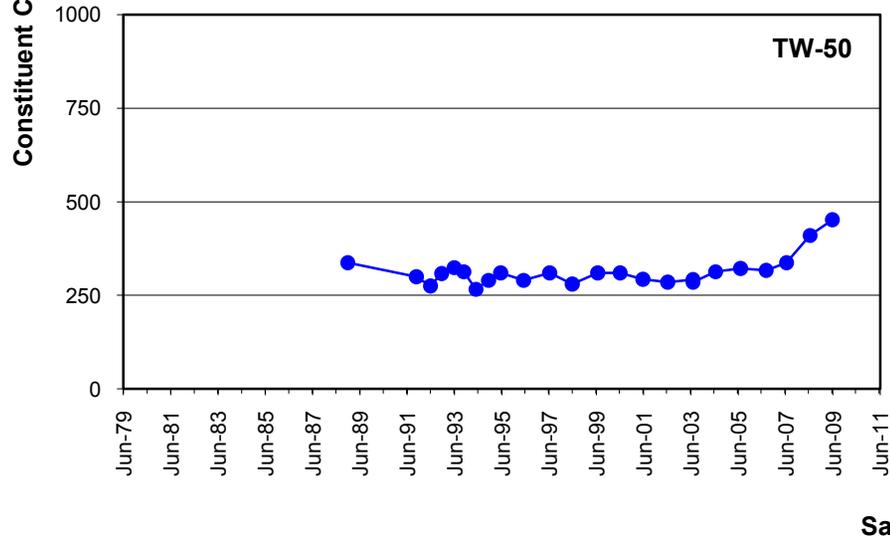
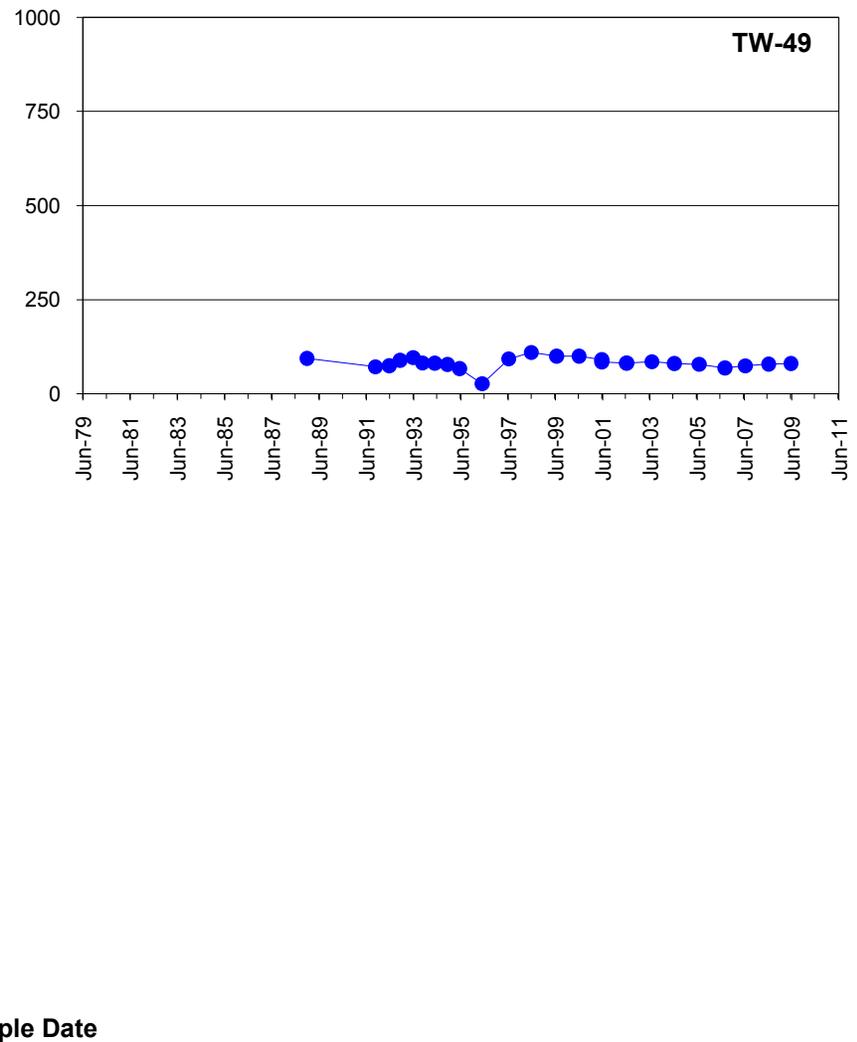
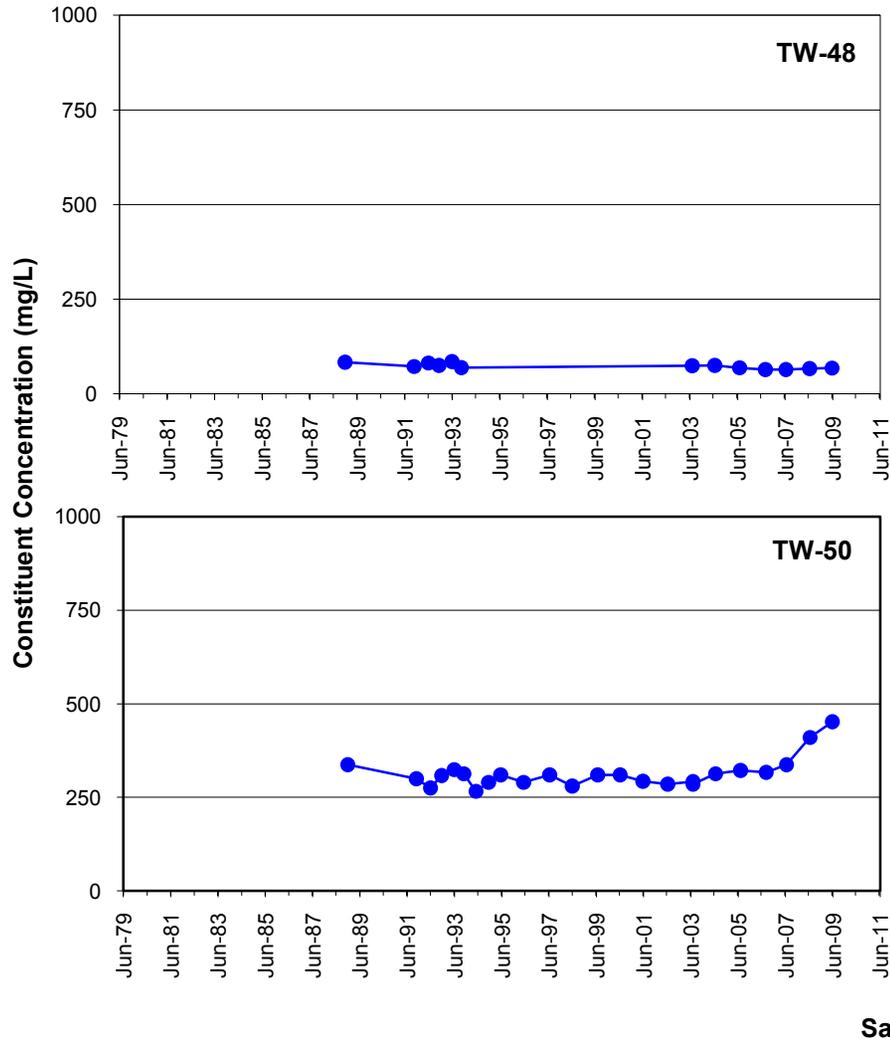
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Underflow Solids Piles Area Wells

FIGURE H-8

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

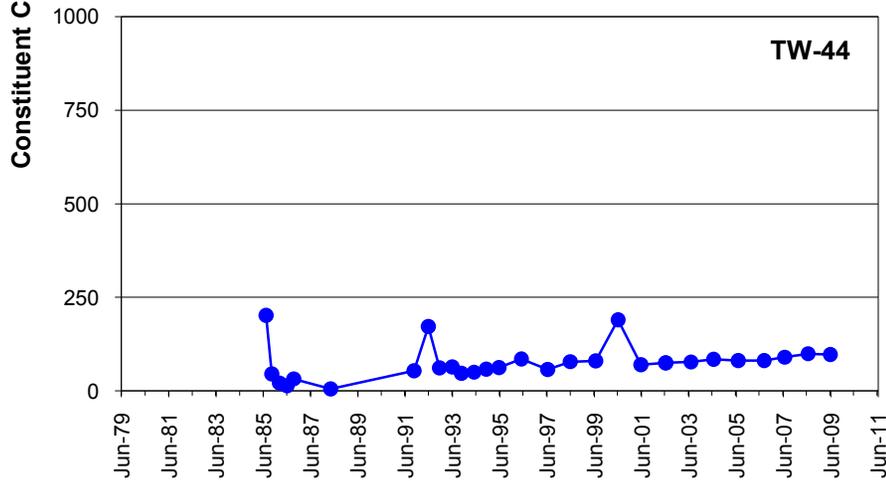
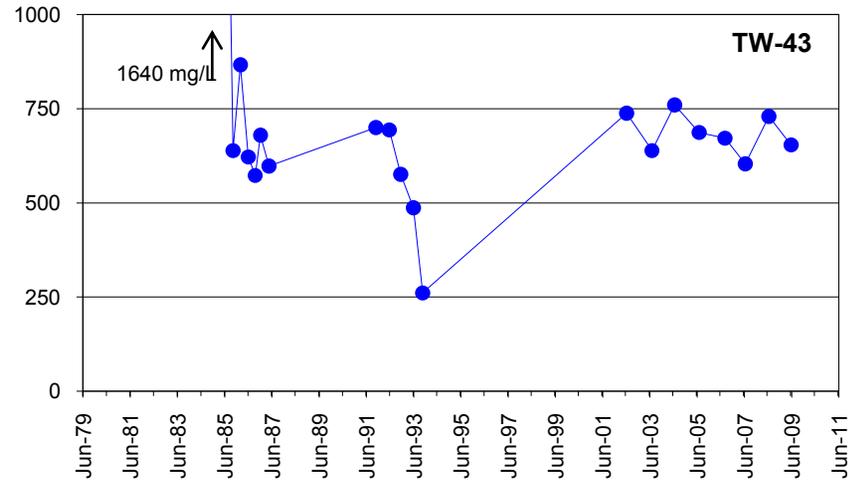
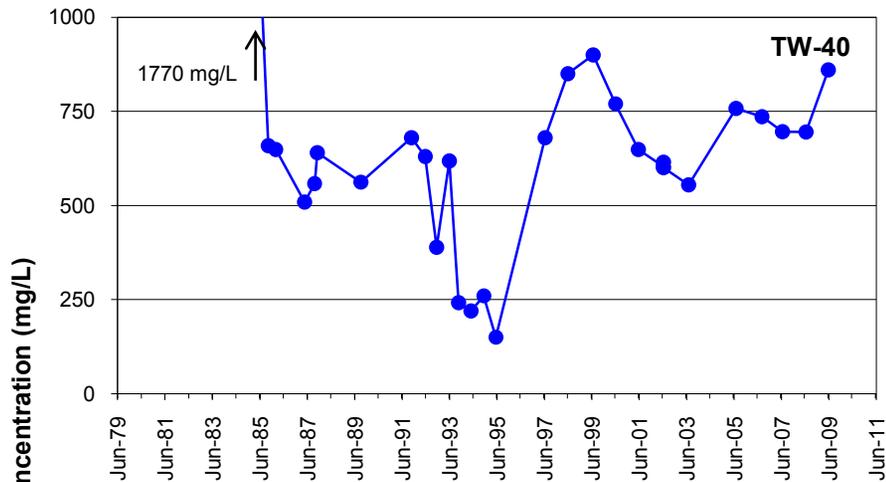
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Hydroclarifier Area Wells

FIGURE H-9

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

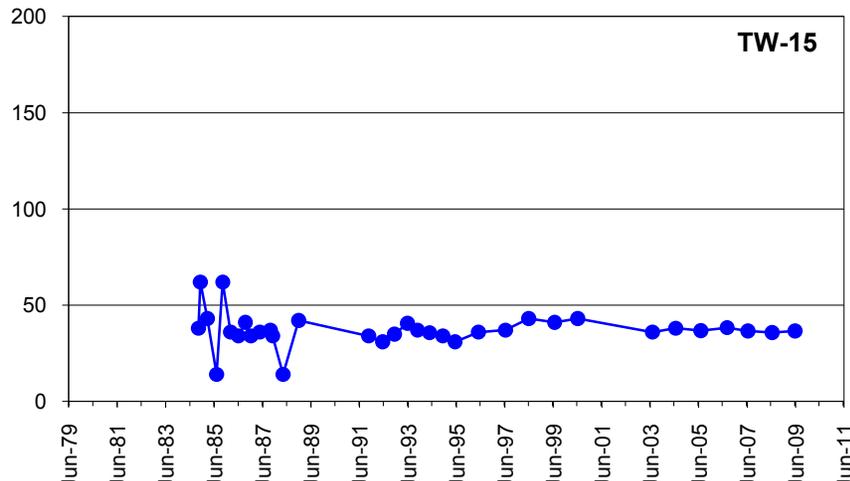
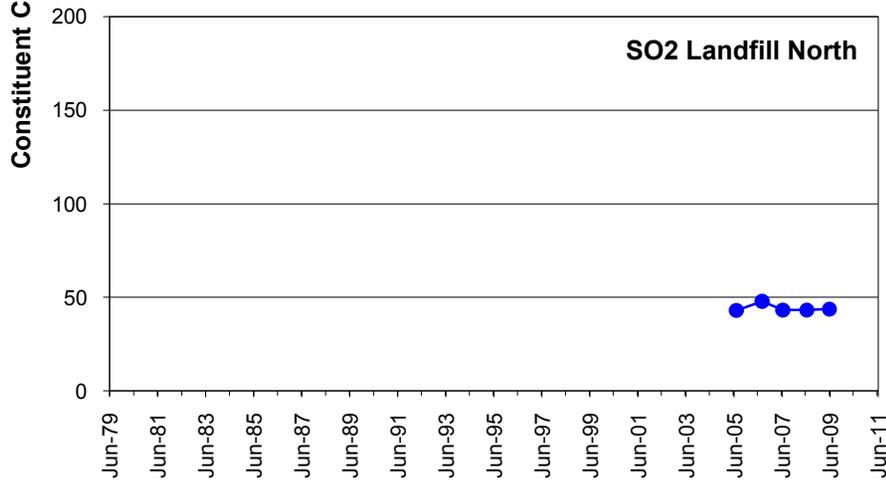
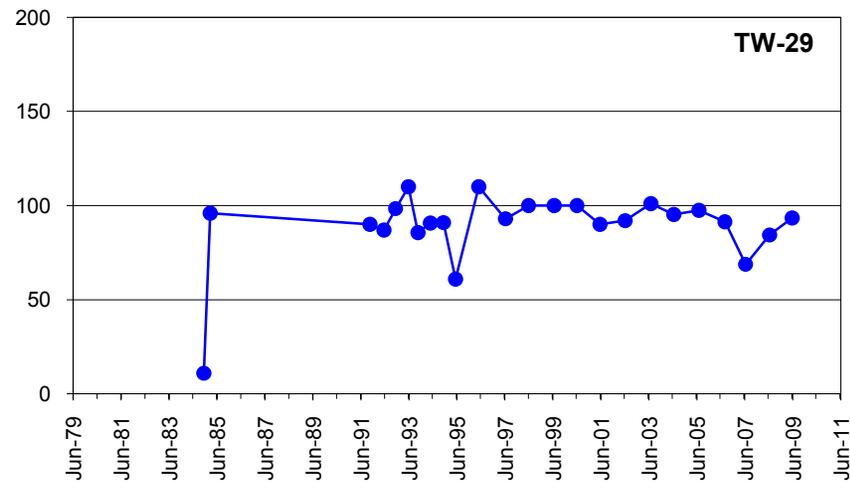
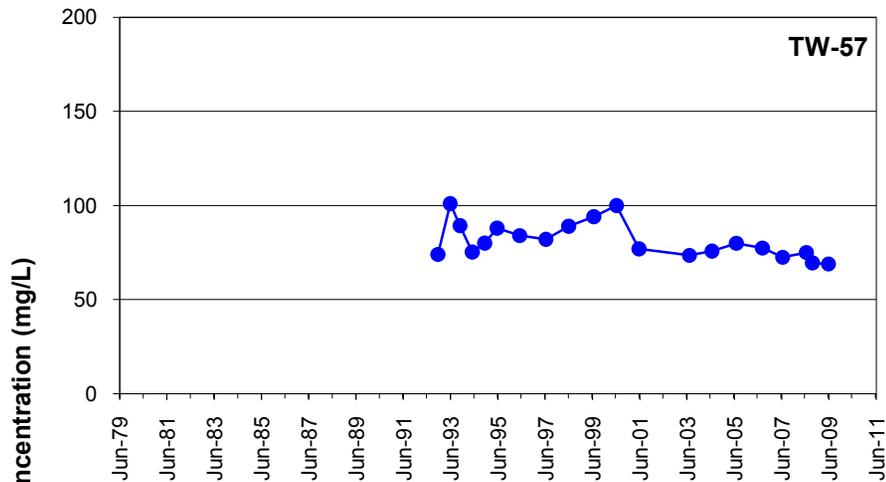
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Background Wells

FIGURE H-10

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

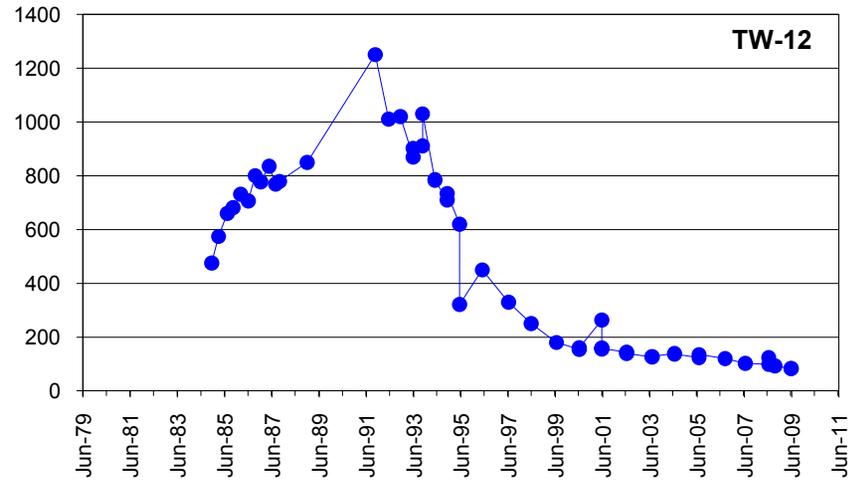
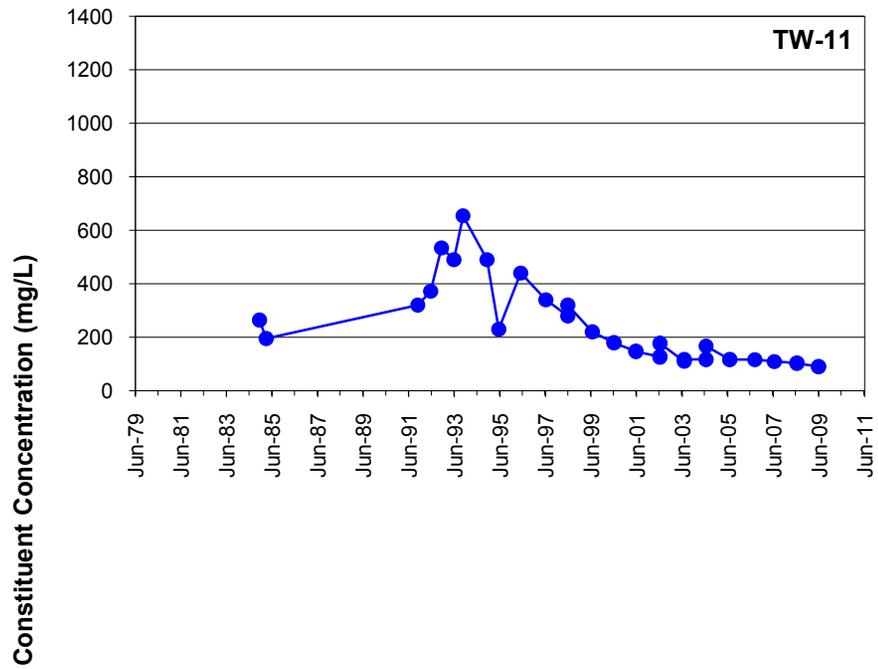
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

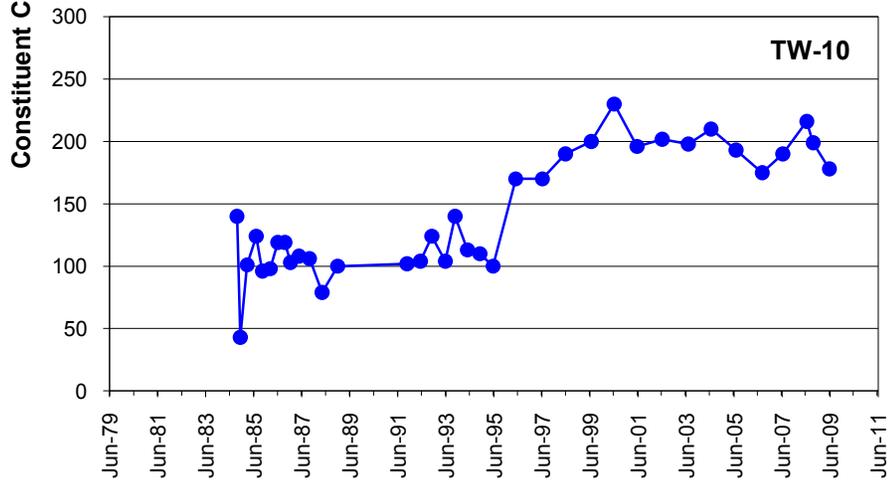
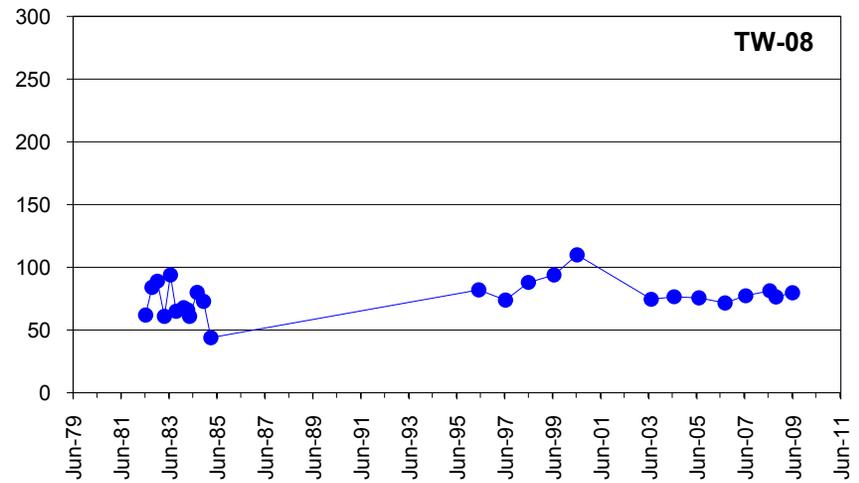
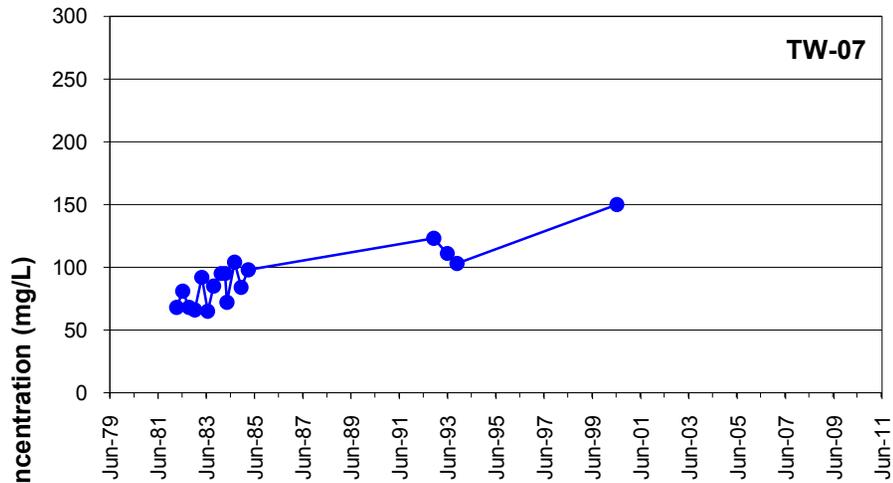


Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE		Sulfate in Southeast Corner Wells		FIGURE H-11	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09	REVIEWED



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Southwest Corner Wells

FIGURE H-12

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

PROJECT Monsanto Groundwater Monitoring

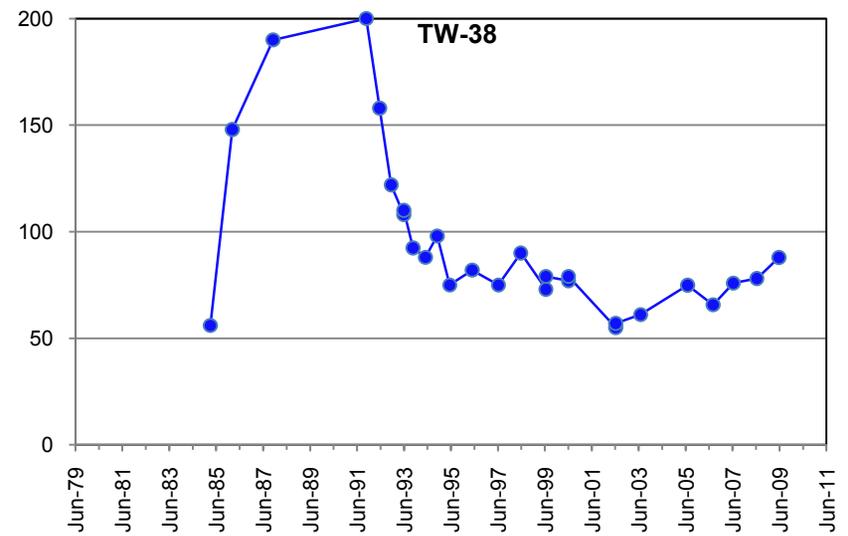
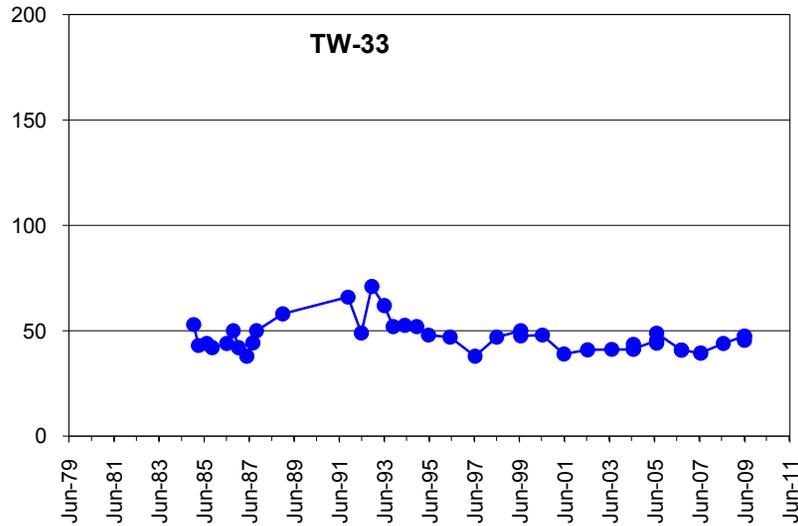
CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

Constituent Concentration (mg/L)

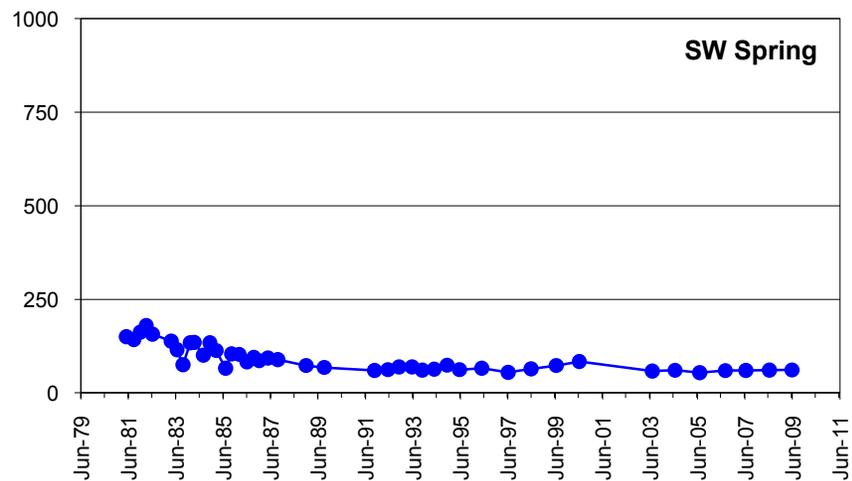
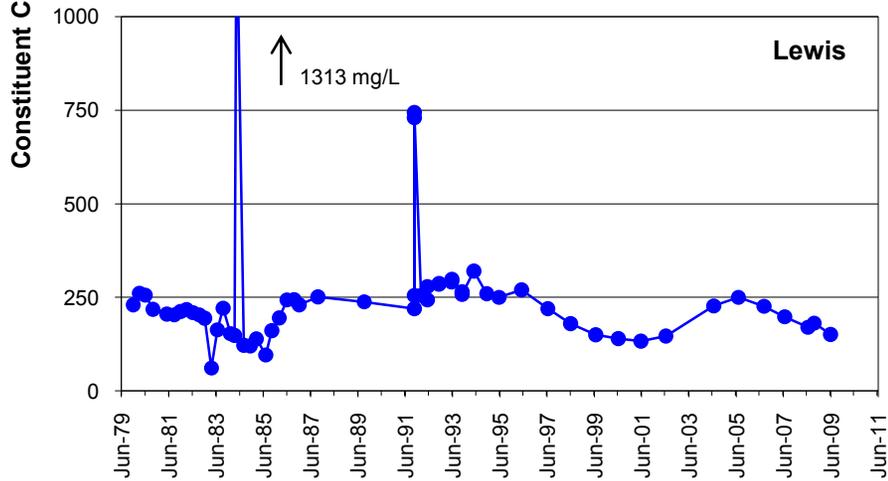
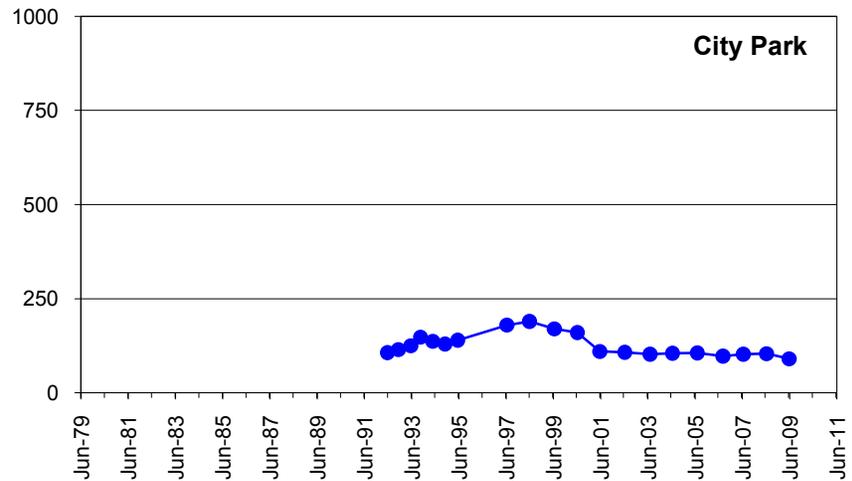
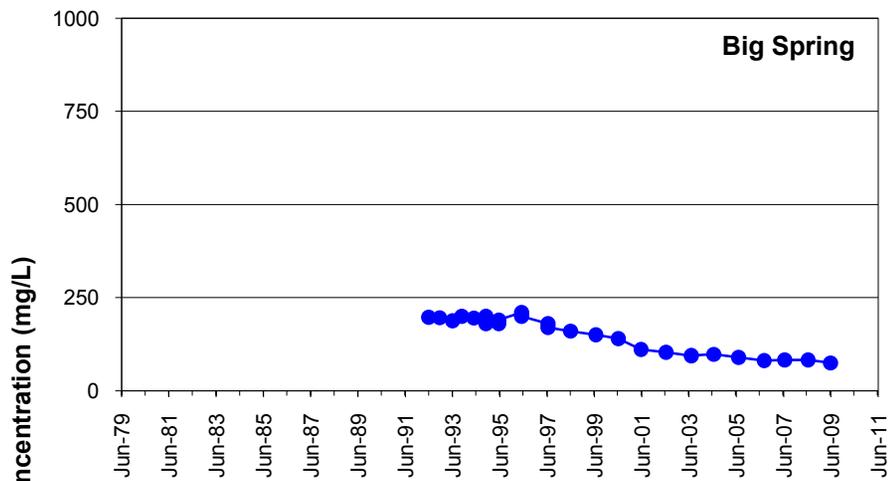


Sample Date

FILE NAME App H Sulfate Charts 2009.xls



	Sulfate in East Wells		FIGURE H-13	
	CLIENT	Monsanto Company	DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	3-Sep-09
		REVIEWED	DB	



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in Offsite Wells and Springs

FIGURE H-14

—●— Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

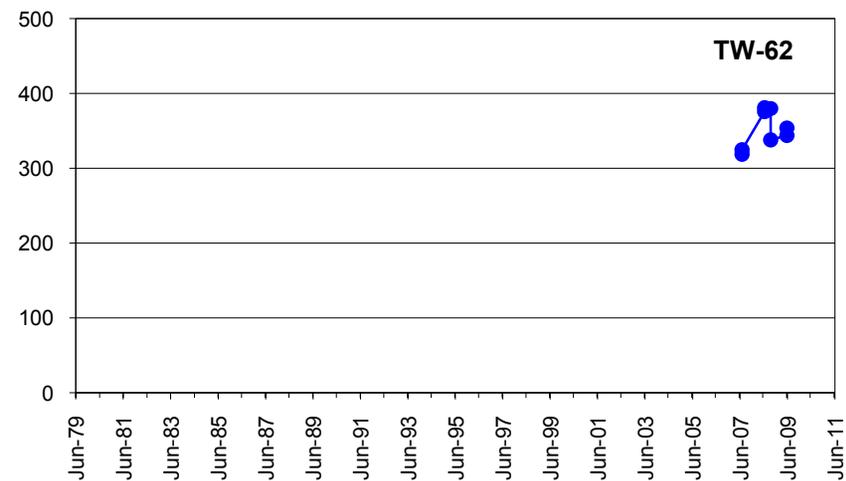
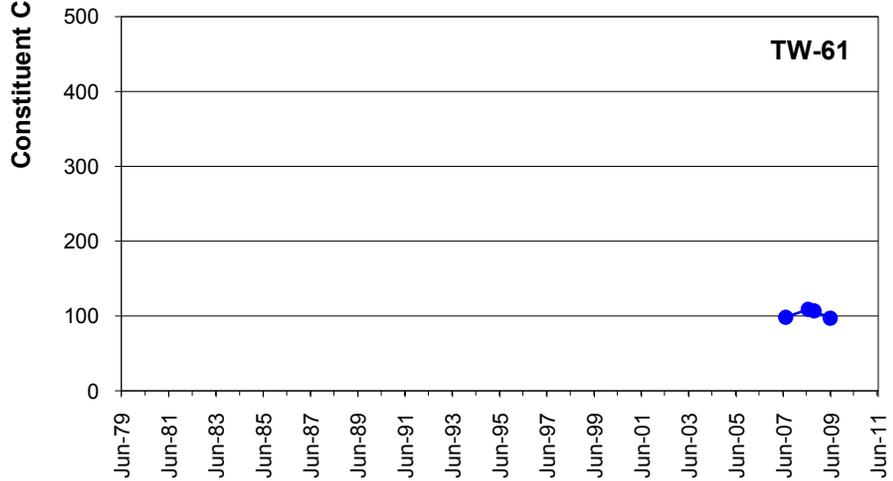
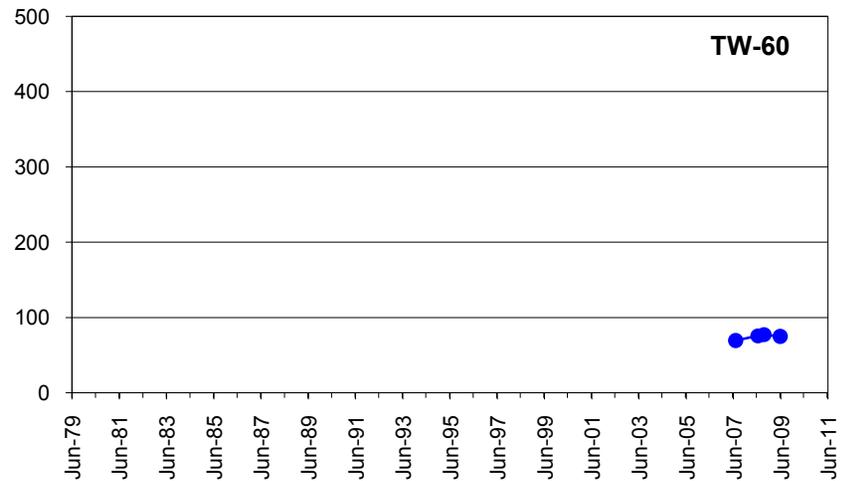
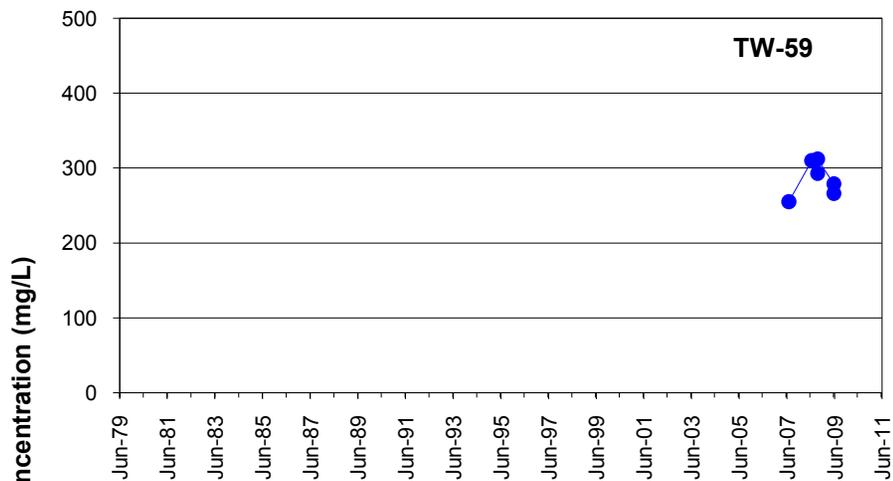
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB



Sample Date

FILE NAME App H Sulfate Charts 2009.xls



TITLE

Sulfate in 2007 Monitoring Wells

FIGURE H-15

● Constituent Concentration (mg/L)

CLIENT Monsanto Company

DRAWN FV

PROJECT Monsanto Groundwater Monitoring

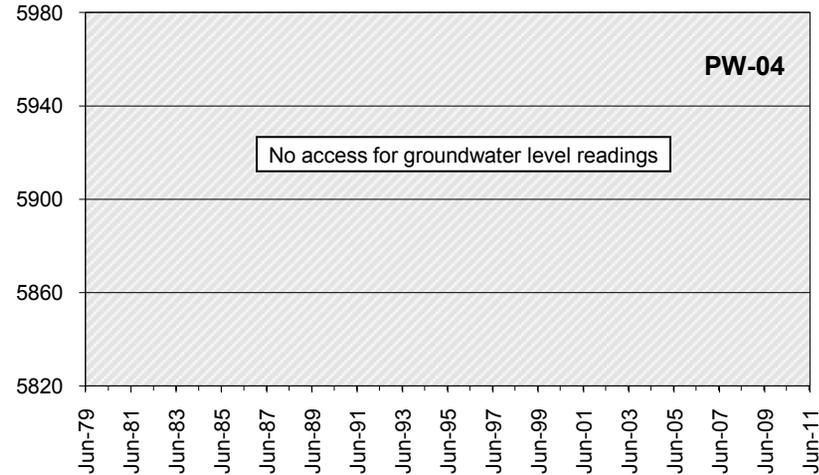
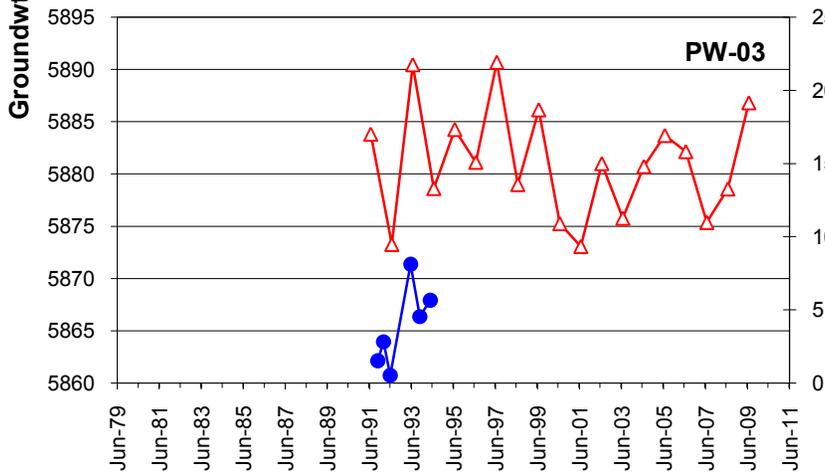
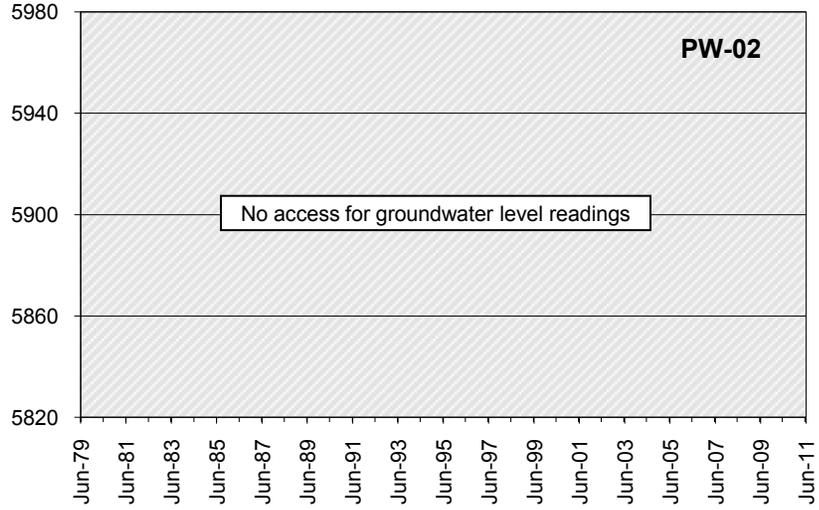
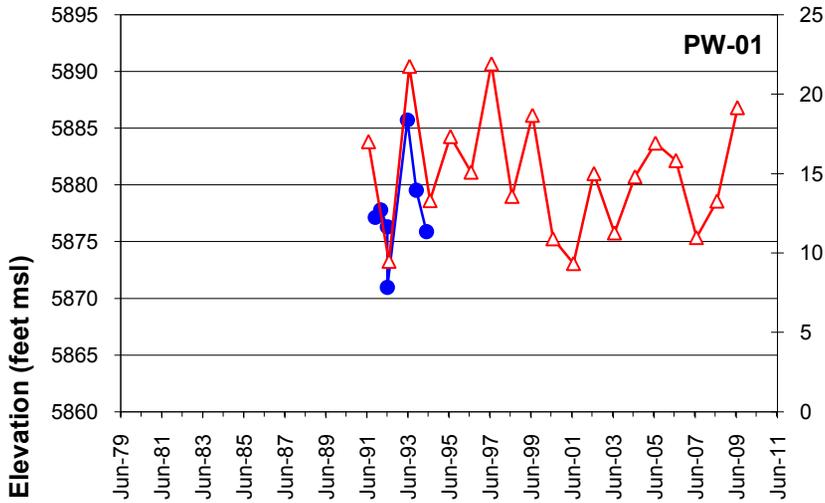
CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 3-Sep-09

REVIEWED DB

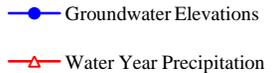
APPENDIX I
GROUNDWATER ELEVATION HYDROGRAPHS

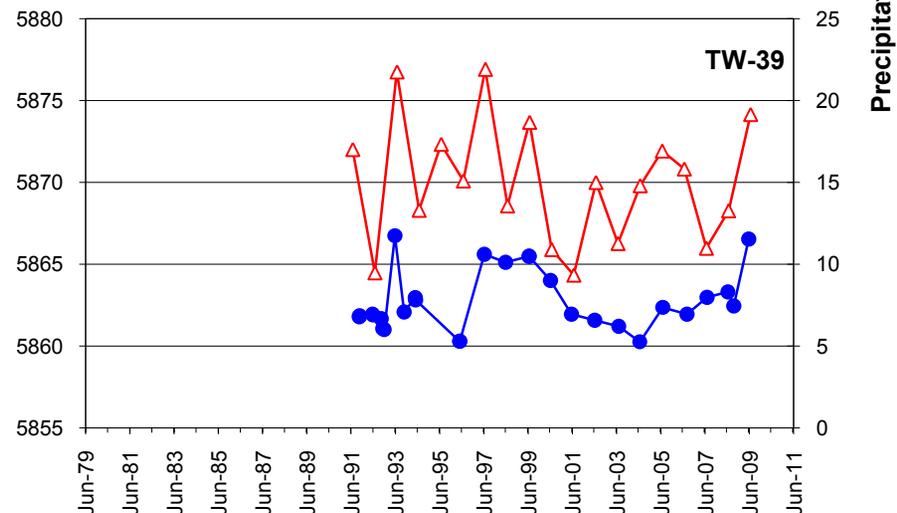
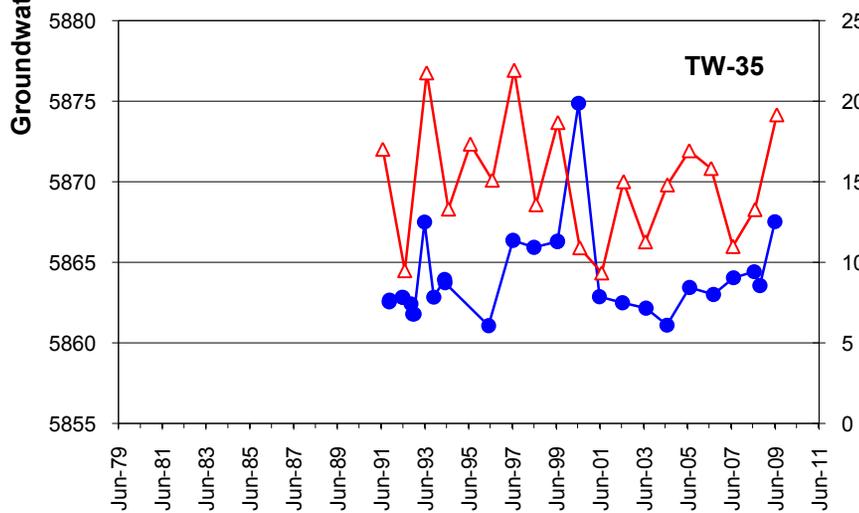
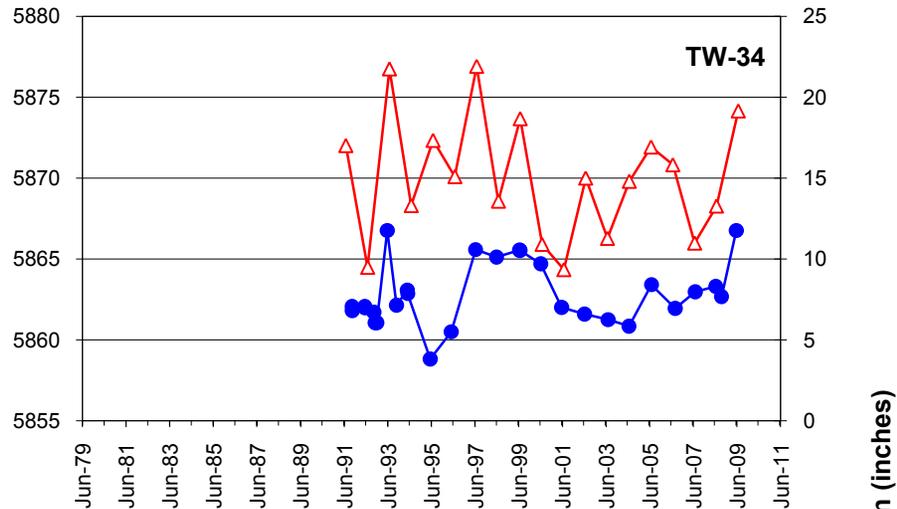
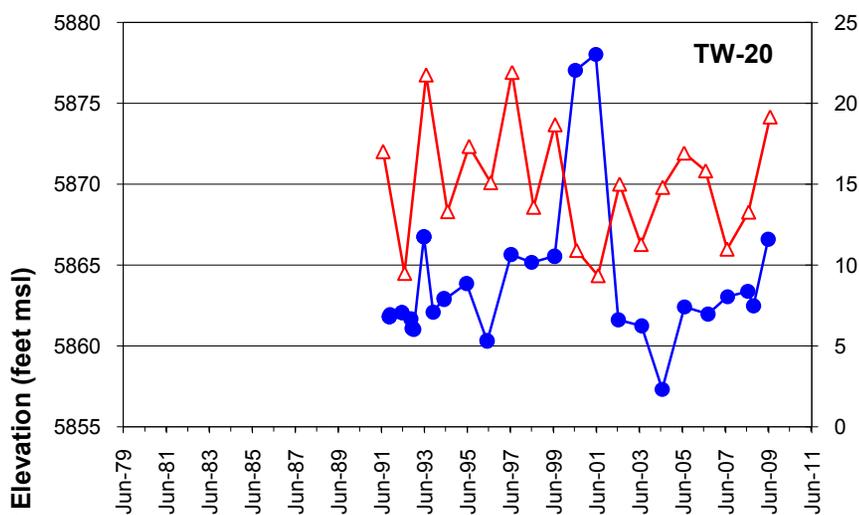


Precipitation (inches)

FILE NAME App I Groundwater Elevations 2009.xls

Sample Date

	TITLE Groundwater Elevation in Production Wells		FIGURE I-1	
			CLIENT Monsanto Company	DRAWN FV
			PROJECT Monsanto Groundwater Monitoring	CHECKED MPK
	PROJECT NO. 913-1101.605A	DATE 19-Oct-09	REVIEWED DB	



App I Groundwater Elevations 2009.xls

Sample Date



TITLE

Groundwater Elevation in South Fenceline Wells

FIGURE I-2

- Groundwater Elevations
- ▲ Water Year Precipitation

CLIENT Monsanto Company

DRAWN FV

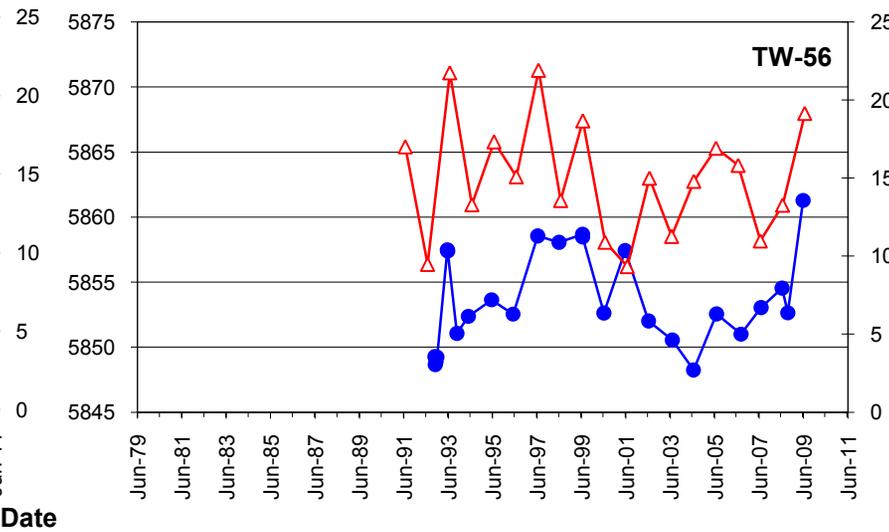
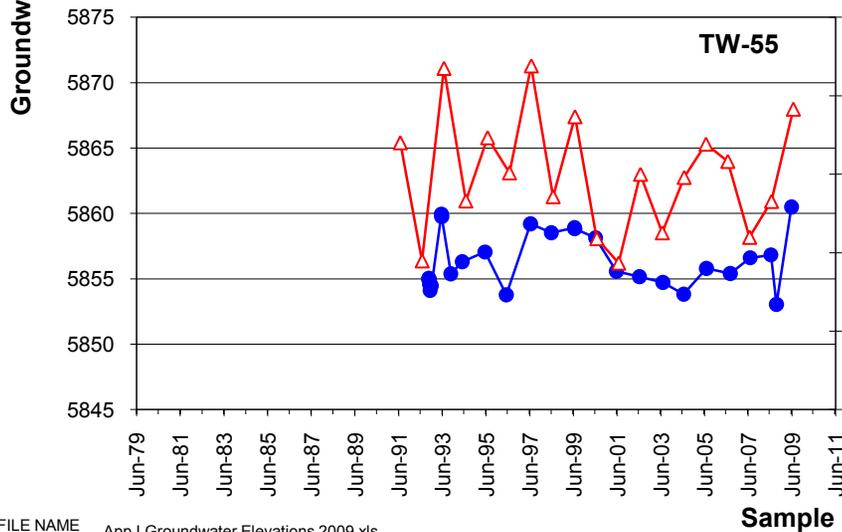
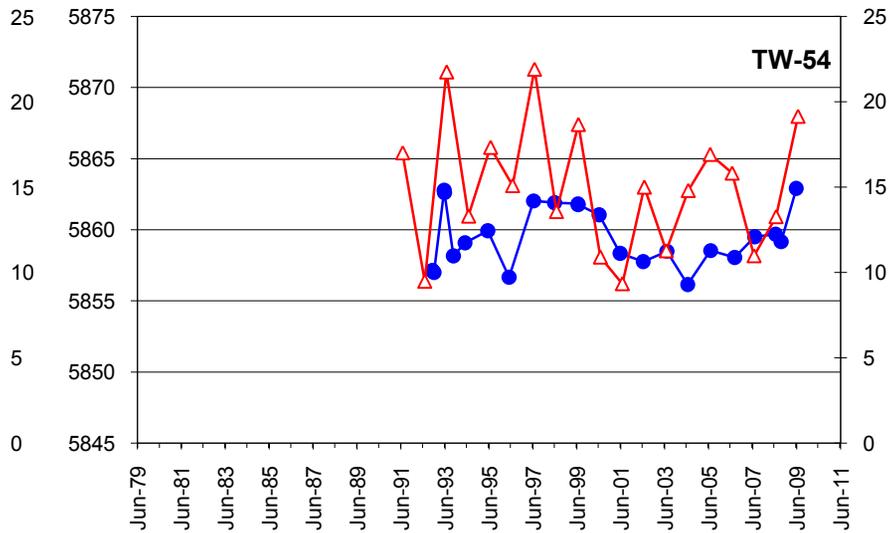
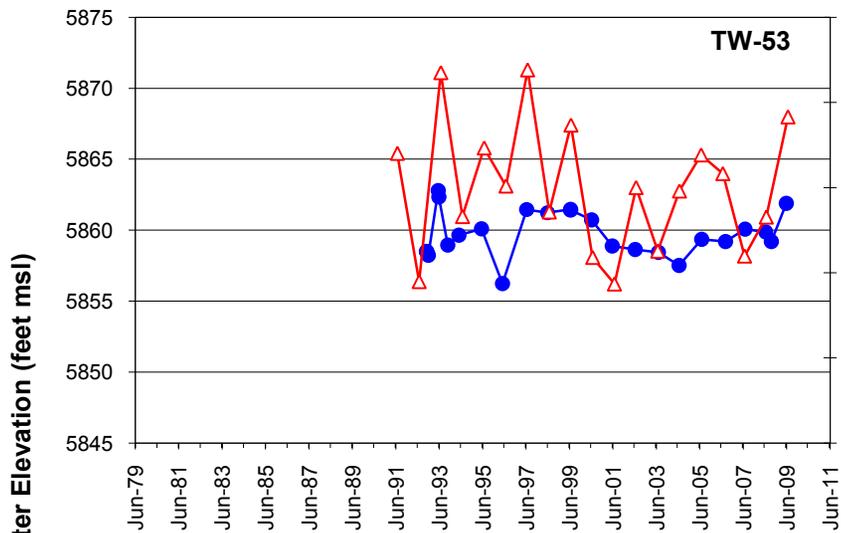
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 19-Oct-09

REVIEWED DB



FILE NAME App I Groundwater Elevations 2009.xls

Sample Date



TITLE

Groundwater Elevation in Southern Boundary Wells

FIGURE I-3

—●— Groundwater Elevations —▲— Water Year Precipitation

CLIENT Monsanto Company

DRAWN FV

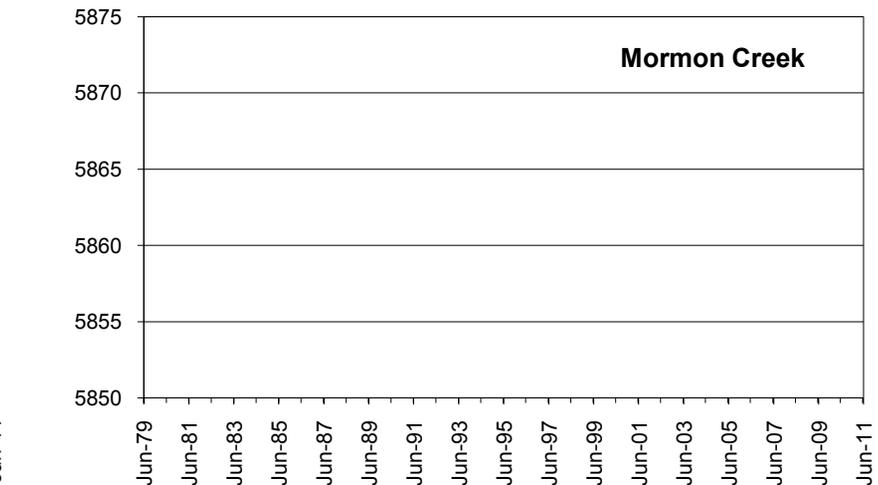
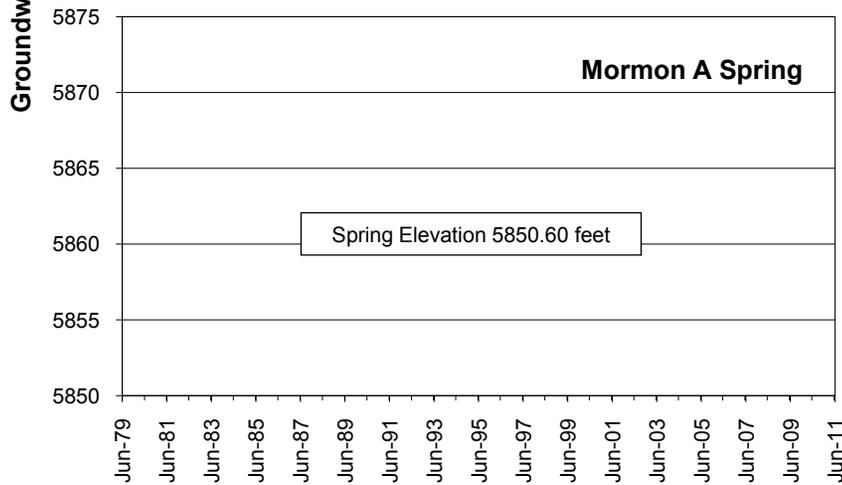
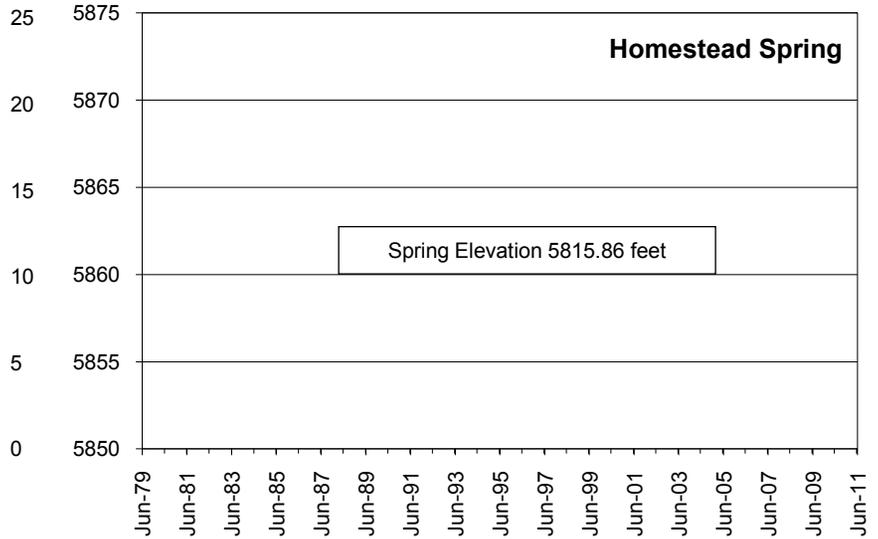
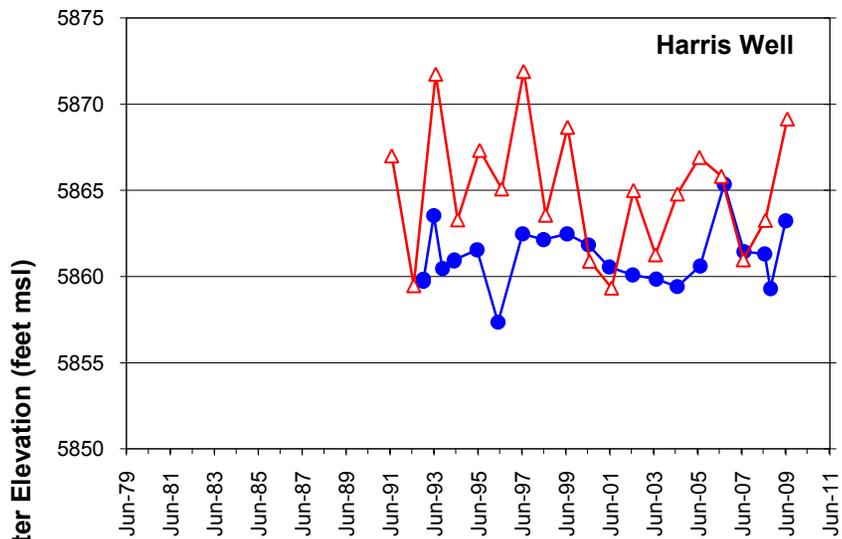
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 19-Oct-09

REVIEWED DB



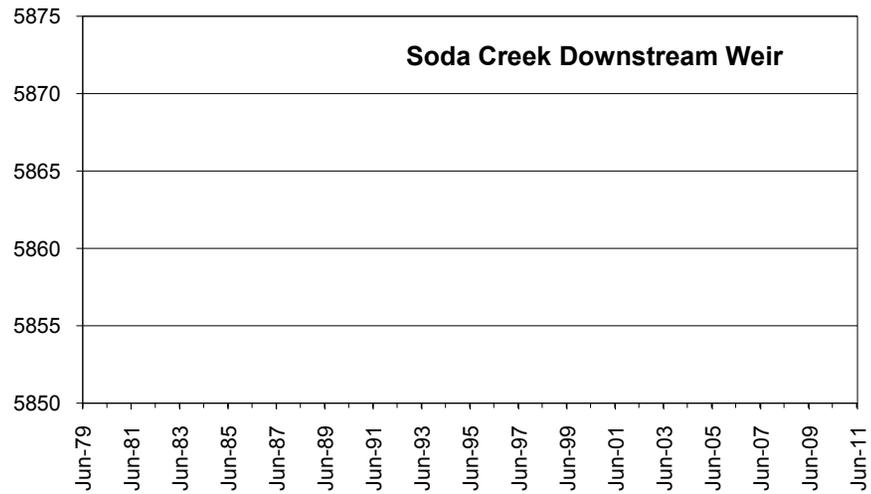
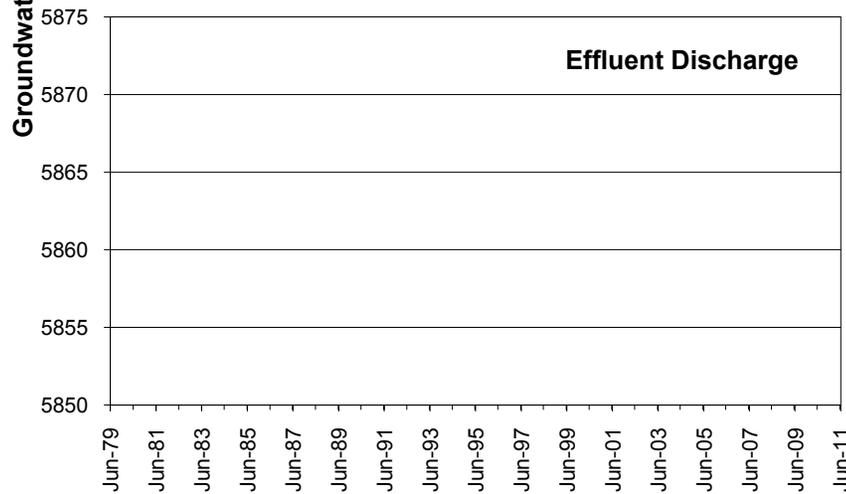
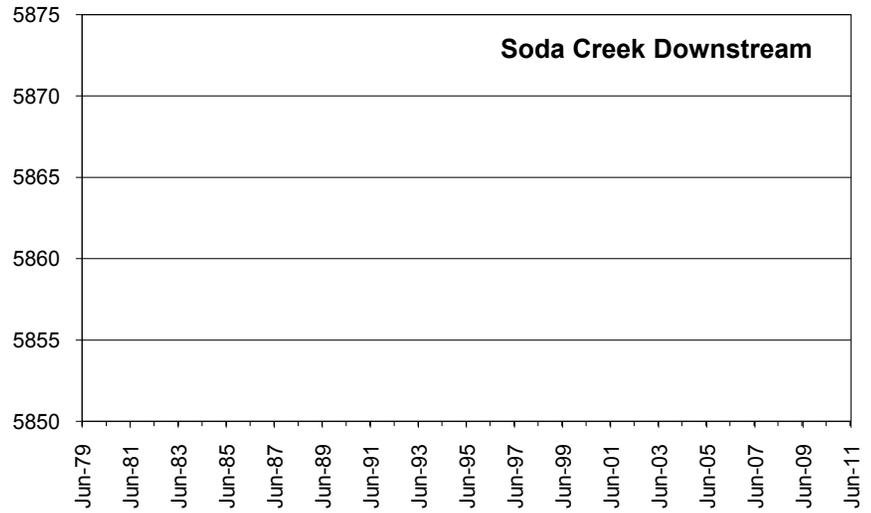
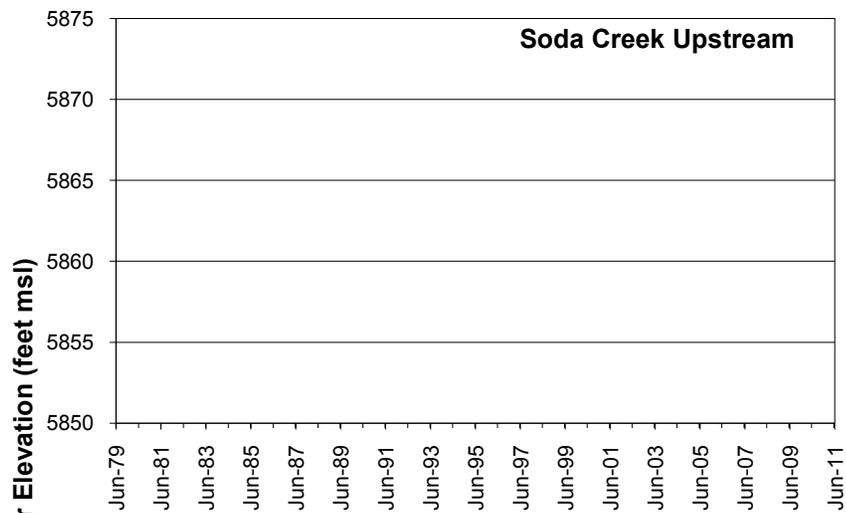
Precipitation (inches)

App I Groundwater Elevations 2009.xls

Sample Date



TITLE		Groundwater Elevation in Harris Well and Springs South of Plant		FIGURE I-4	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED



Precipitation (inches)

Sample Date

FILE NAME App I Groundwater Elevations 2009.xls



TITLE

Groundwater Elevation in Soda Creek and Treatment Plant Effluent

FIGURE I-5

CLIENT Monsanto Company

DRAWN FV

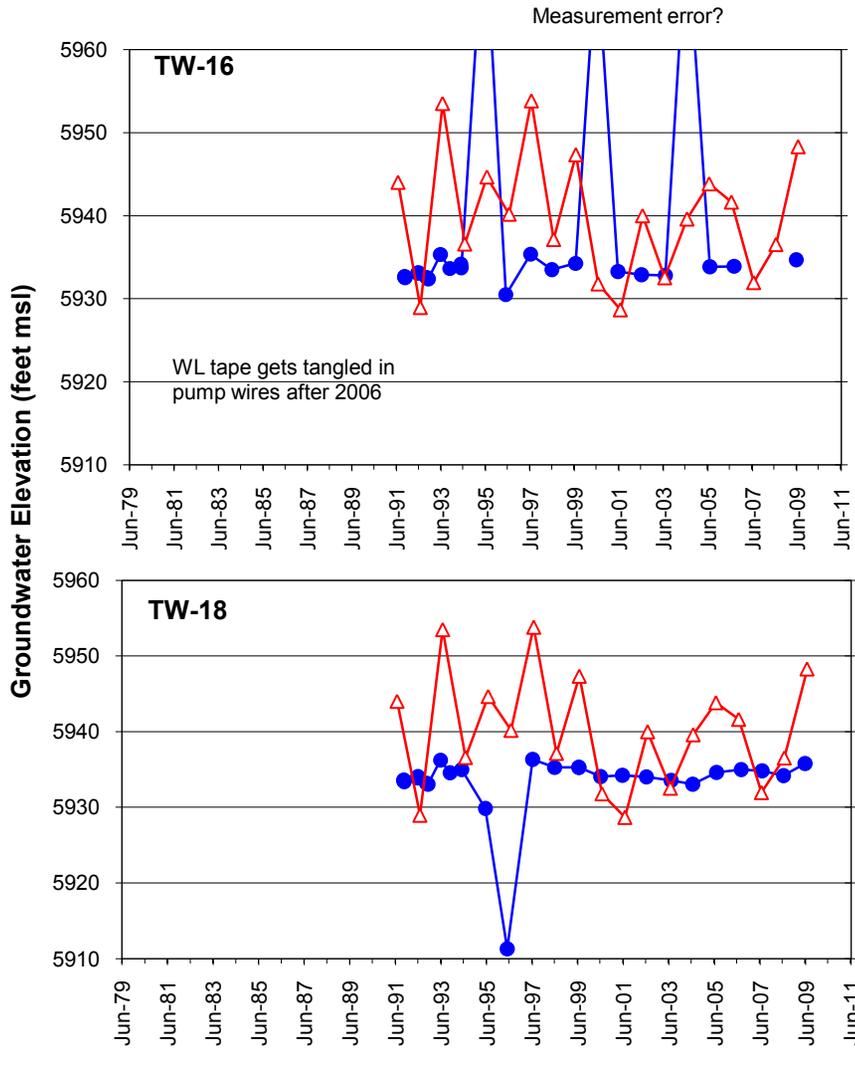
PROJECT Monsanto Groundwater Monitoring

CHECKED MPK

PROJECT NO. 913-1101.605A

DATE 19-Oct-09

REVIEWED DB



FILE NAME App I Groundwater Elevations 2009.xls



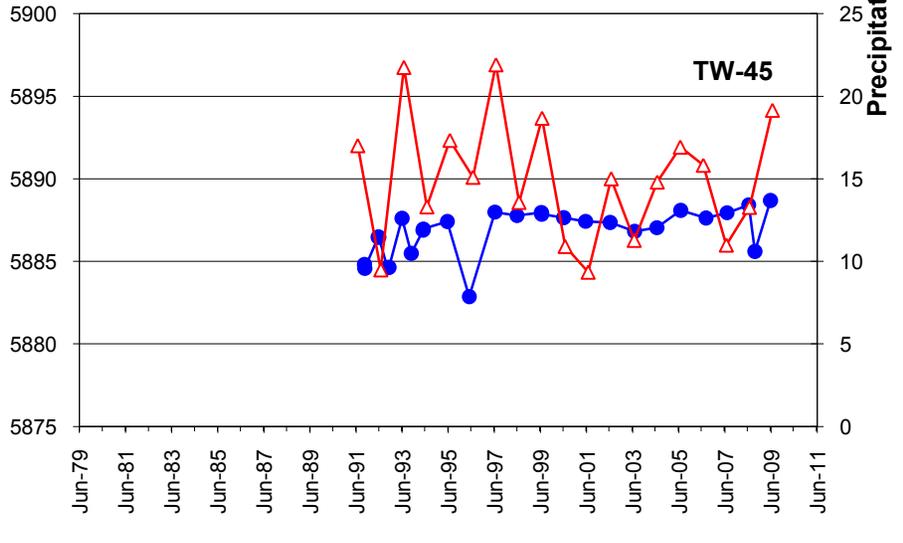
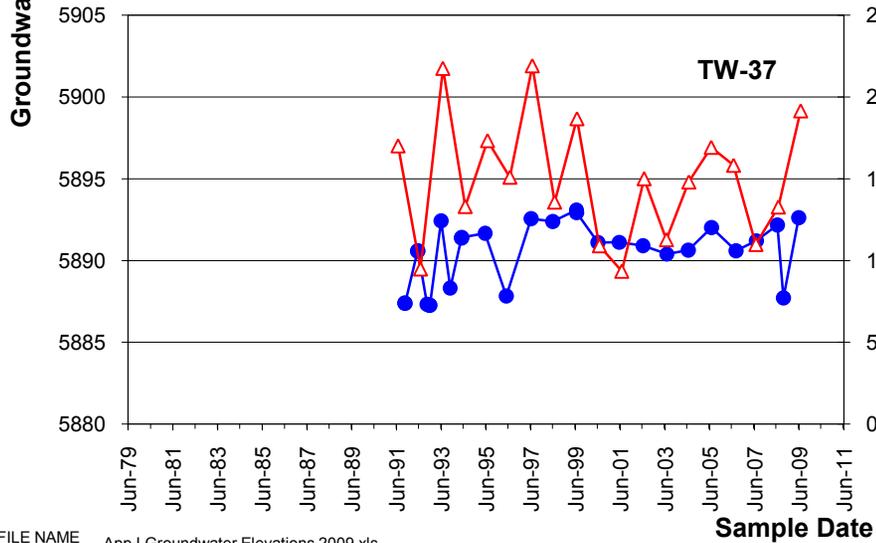
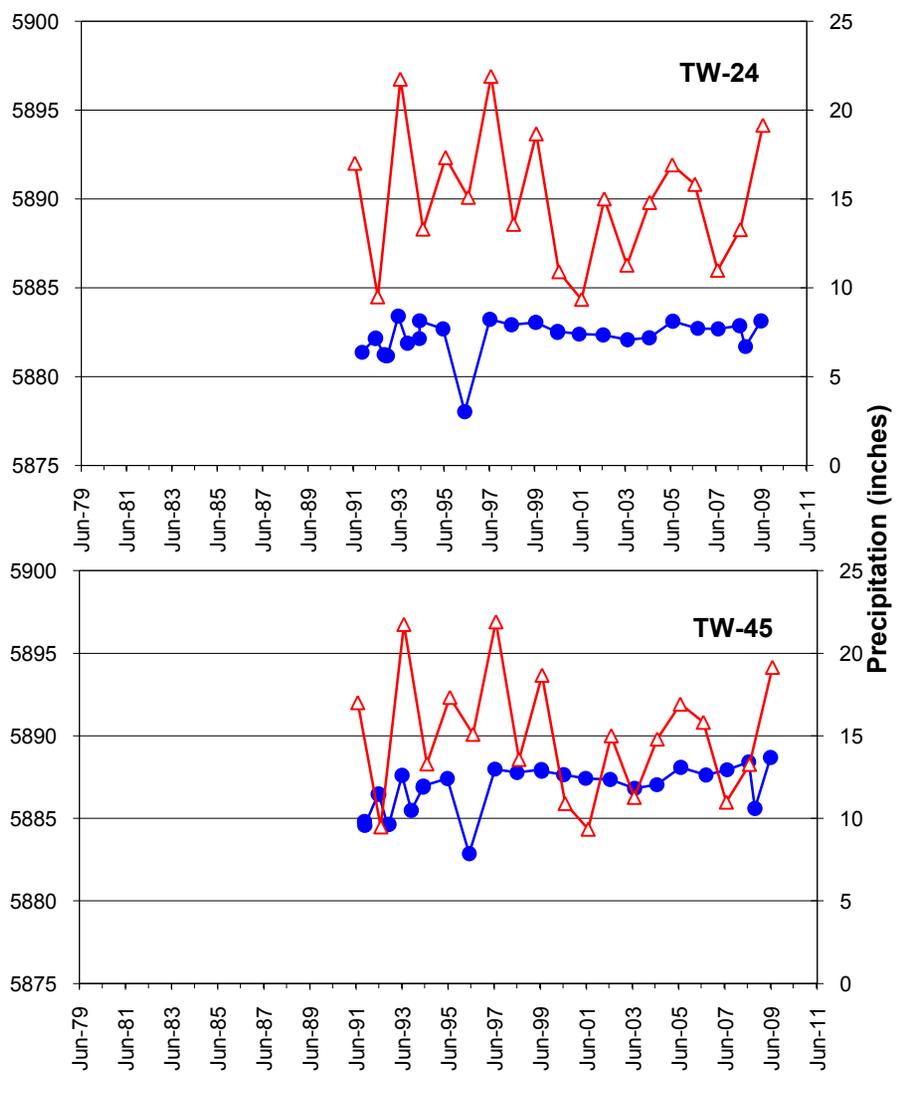
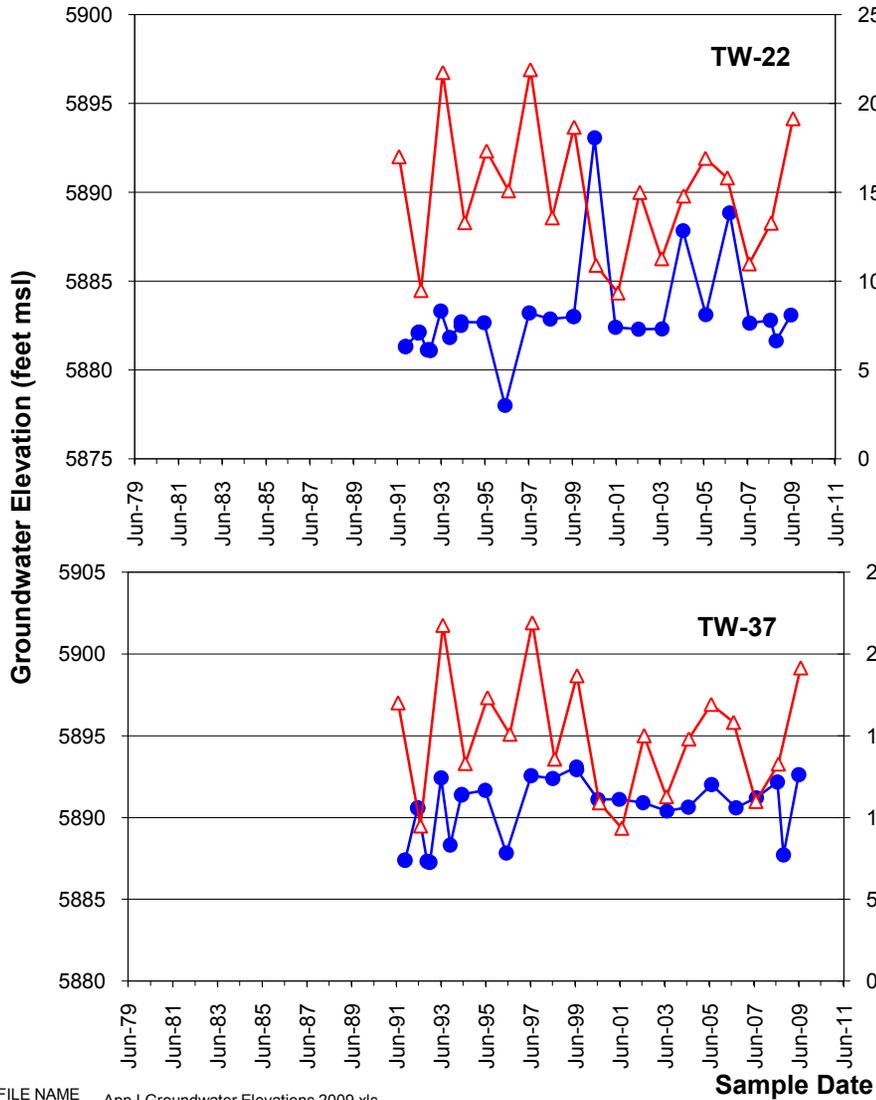
TITLE **Groundwater Elevation in NW Pond Wells**

FIGURE **I-6**

—●— Groundwater Elevations —▲— Water Year Precipitation

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

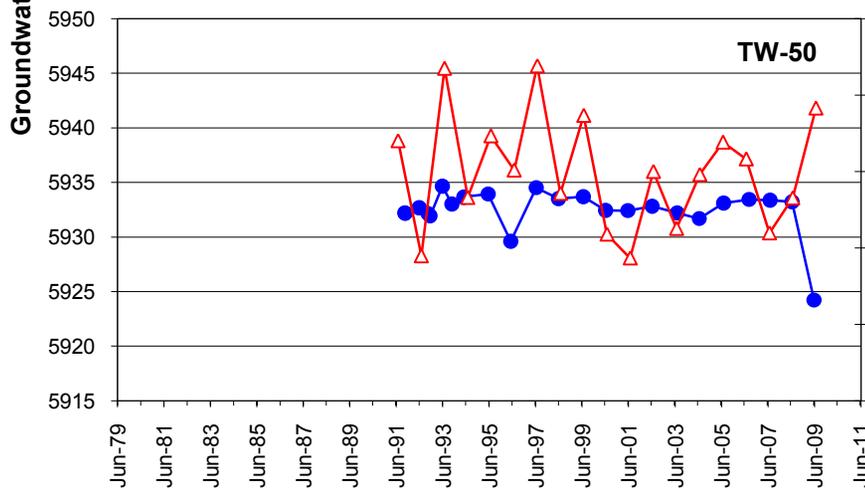
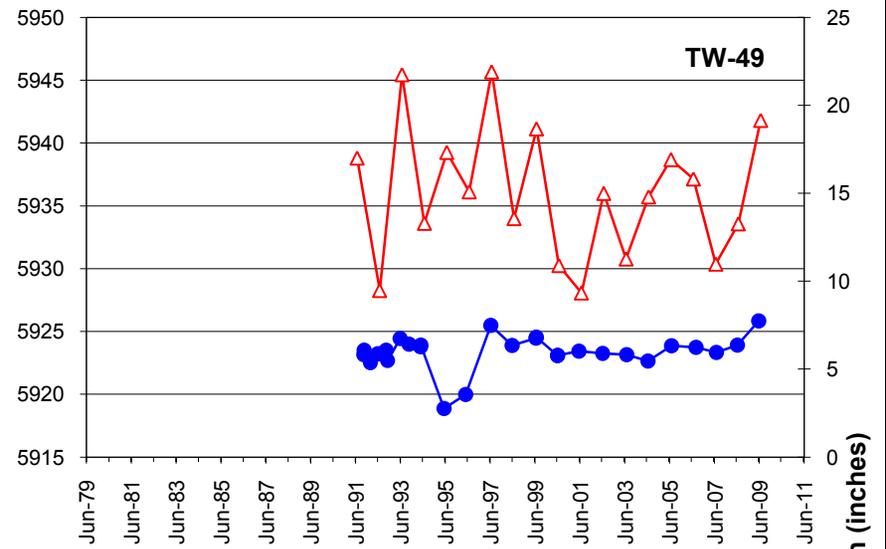
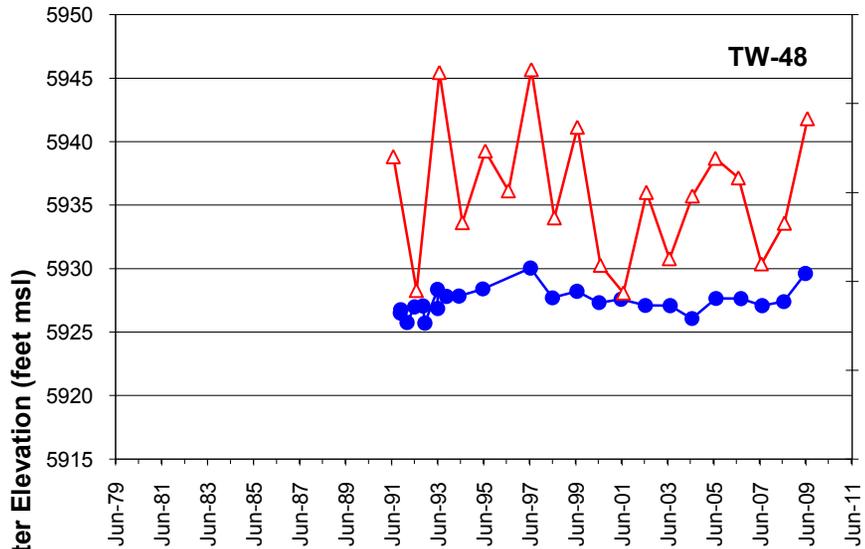
DRAWN	FV
CHECKED	MPK
REVIEWED	DB



FILE NAME App I Groundwater Elevations 2009.xls



TITLE		Groundwater Elevation in Old Underflow Solids Pond Area Wells		FIGURE I-7	
<ul style="list-style-type: none"> ● Groundwater elevations ▲ Water Year Precipitation 		CLIENT	Monsanto Company	DRAWN	FV
		PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB

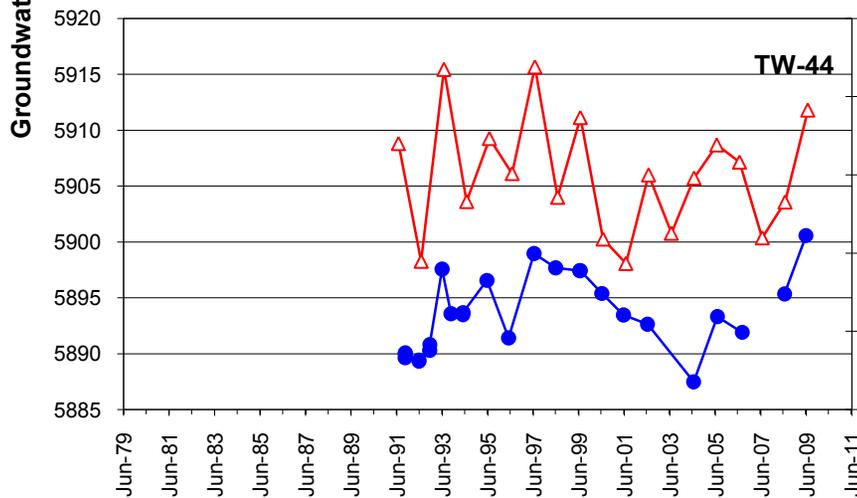
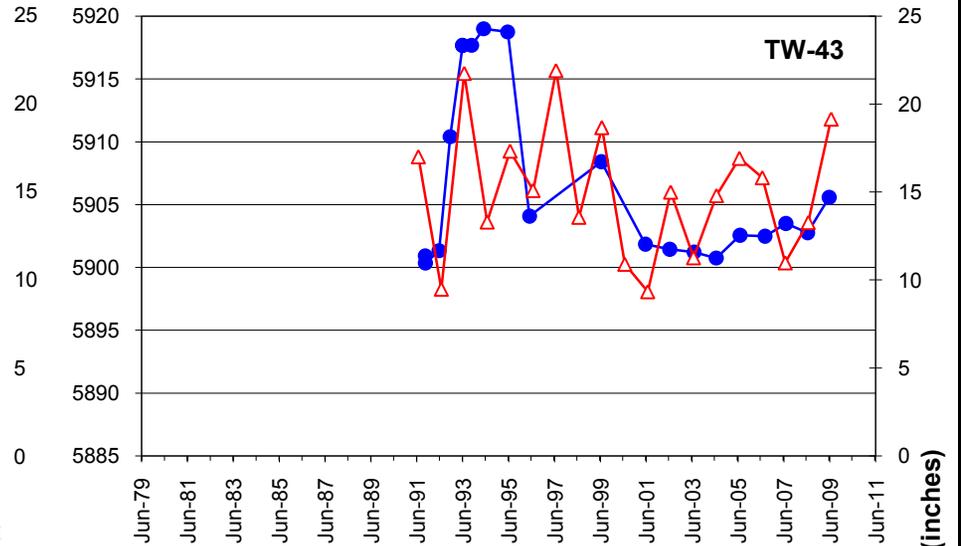
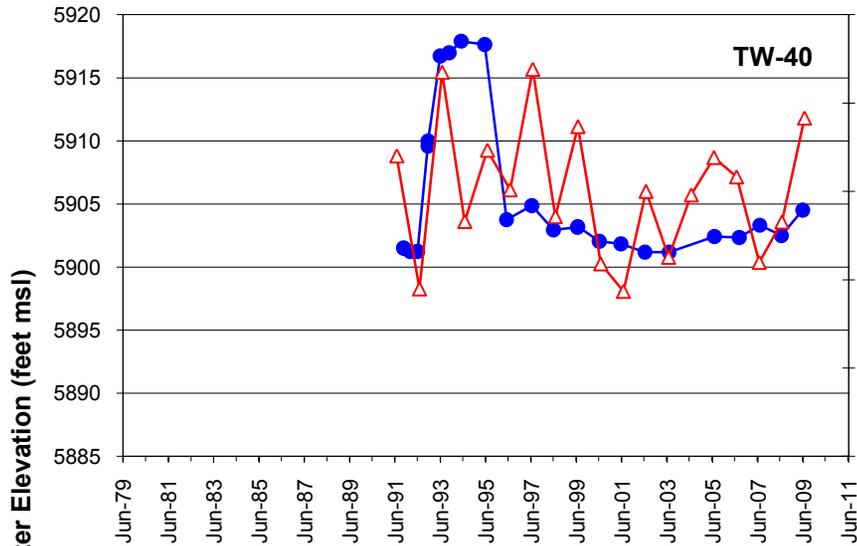


Sample Date

FILE NAME App I Groundwater Elevations 2009.xls



<p>TITLE</p> <p align="center">Groundwater Elevation in Underflow Solids Piles Area Wells</p> <p> ● Groundwater Elevations ▲ Water Year Precipitation </p>	<p>CLIENT</p> <p align="center">Monsanto Company</p>	<p>FIGURE</p> <p align="right">I-8</p>
	<p>PROJECT</p> <p align="center">Monsanto Groundwater Monitoring</p>	<p>DRAWN</p> <p align="right">FV</p>
	<p>PROJECT NO.</p> <p>913-1101.605A</p>	<p>DATE</p> <p>19-Oct-09</p>
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FILE NAME App I Groundwater Elevations 2009.xls



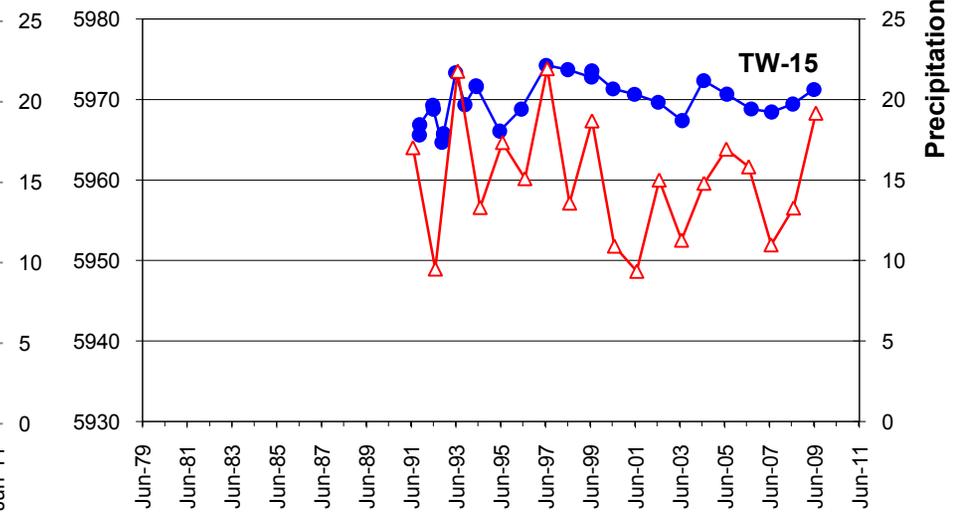
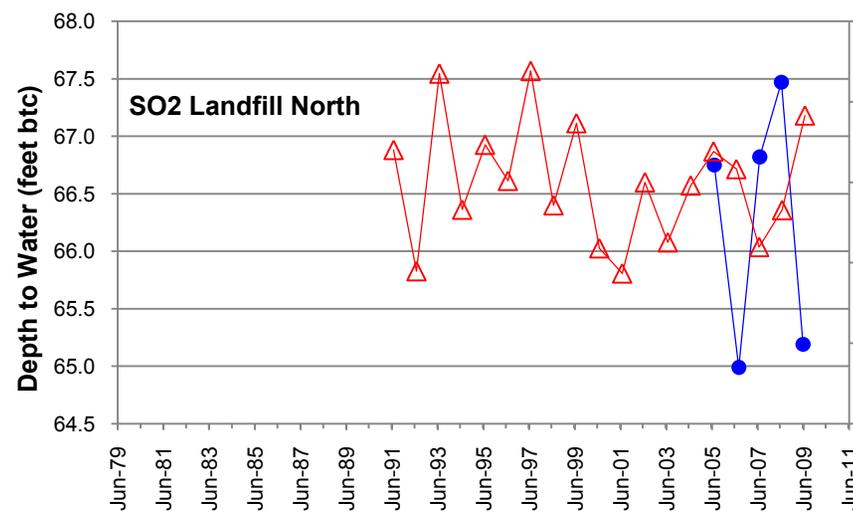
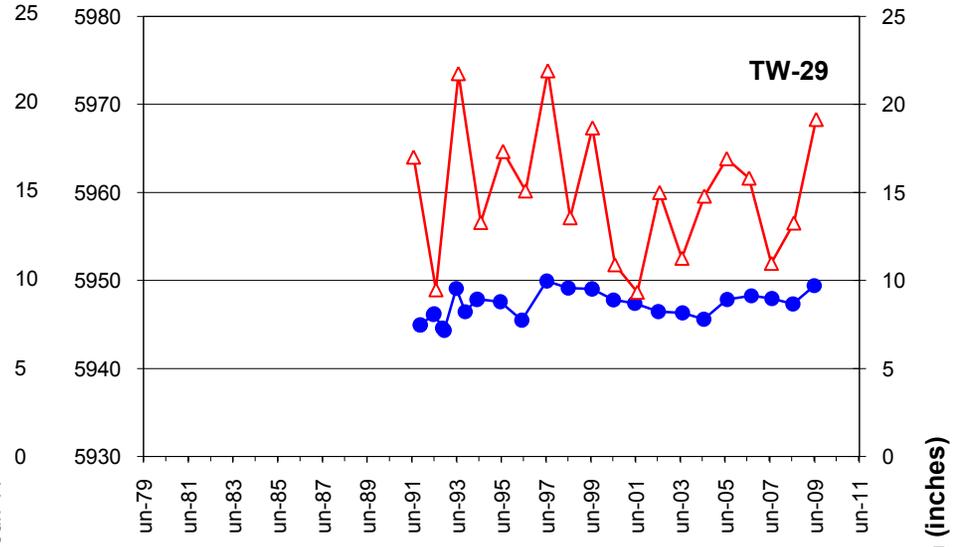
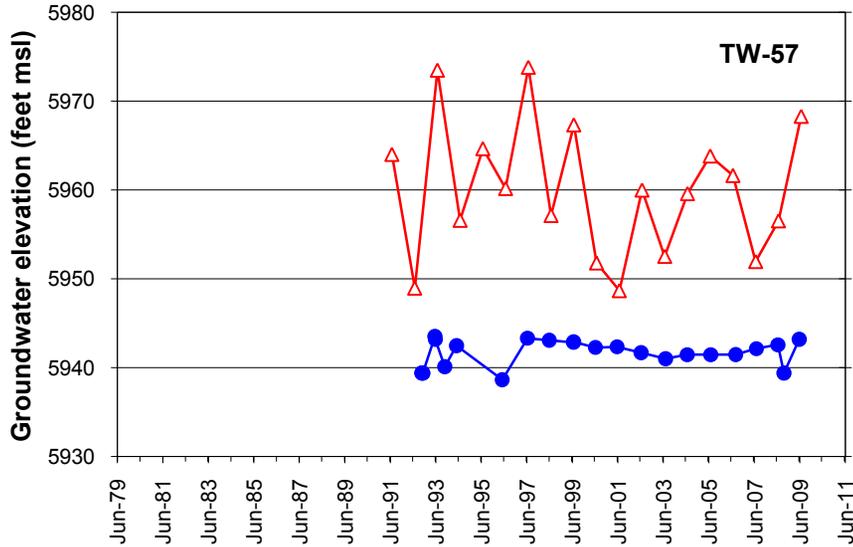
TITLE Groundwater Elevation in Hydroclarifier Area Wells

● Groundwater elevations ▲ Water Year Precipitation

FIGURE I-9

CLIENT Monsanto Company
 PROJECT Monsanto Groundwater Monitoring
 PROJECT NO. 913-1101.605A DATE 19-Oct-09

DRAWN FV
 CHECKED MPK
 REVIEWED DB

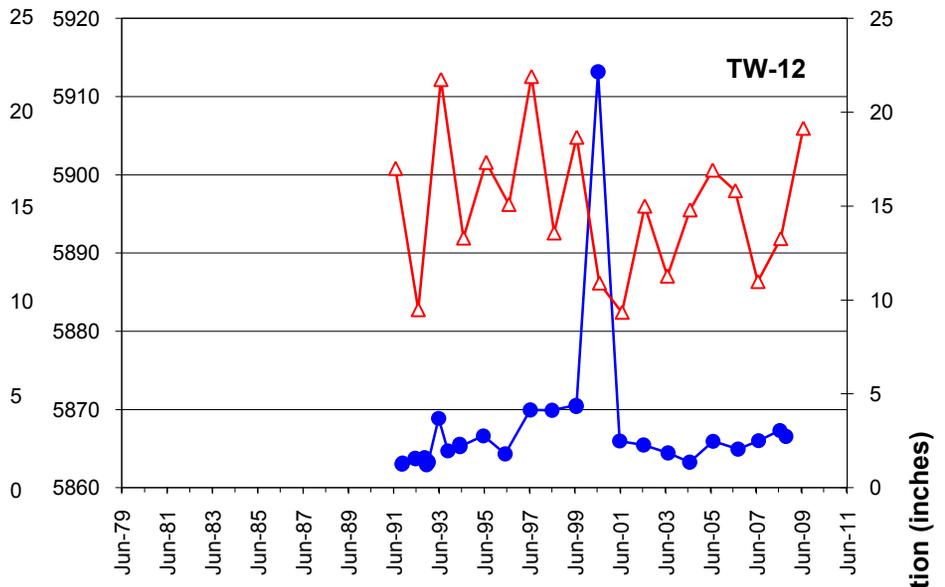
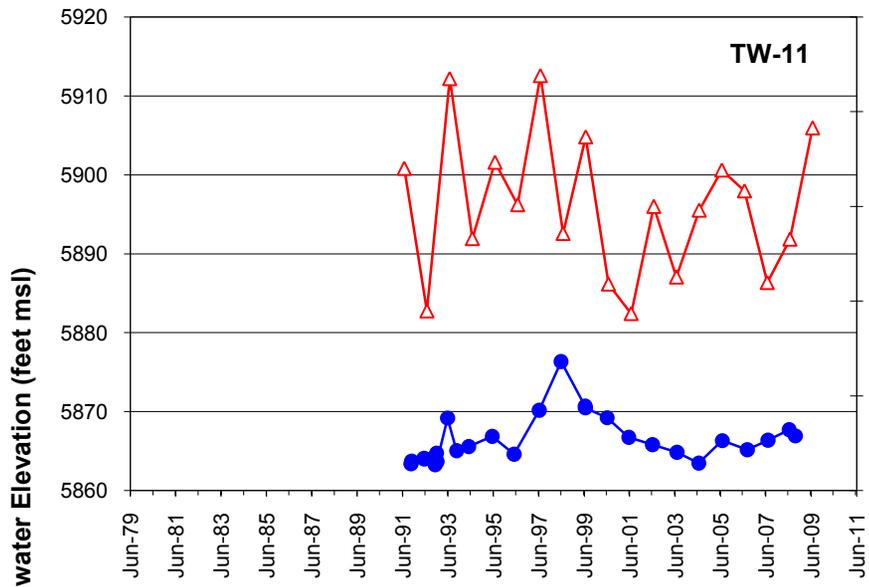


FILE NAME App I Groundwater Elevations 2009.xls

Sample Date



TITLE		Groundwater Elevation in Background Wells		FIGURE I-10	
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		PROJECT NO.	913-1101.605A	DATE	19-Oct-09
				REVIEWED	DB

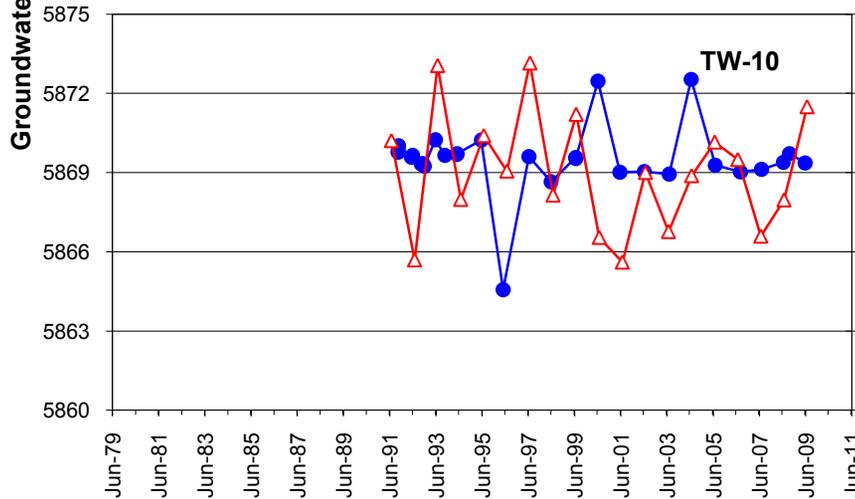
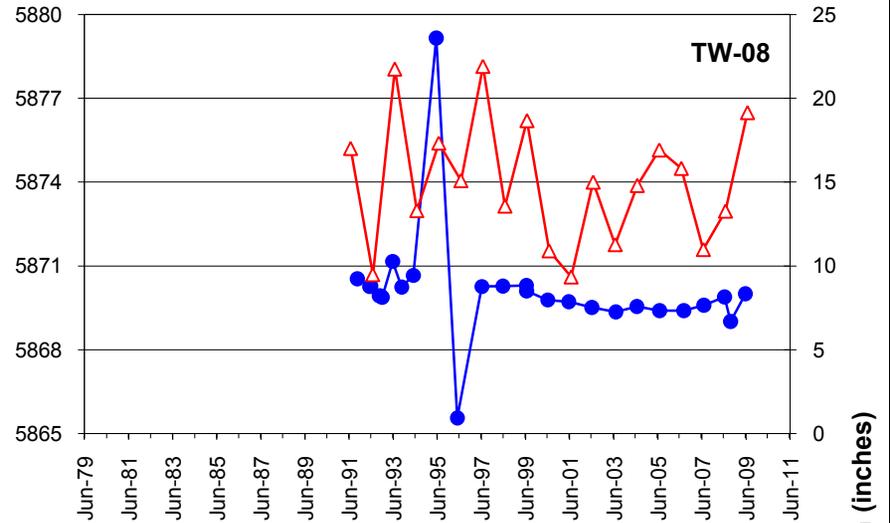
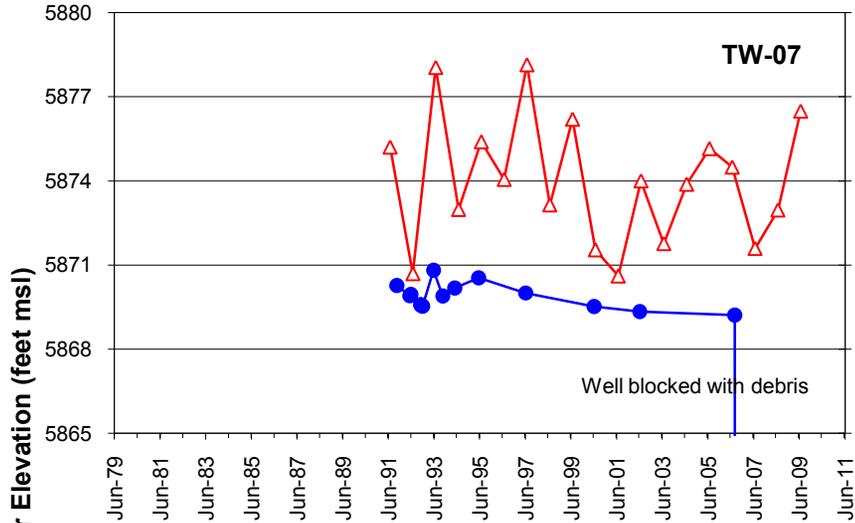


Sample Date

FILE NAME App I Groundwater Elevations 2009.xls



TITLE		Groundwater Elevation in Southeast Corner Wells		FIGURE I-11	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED

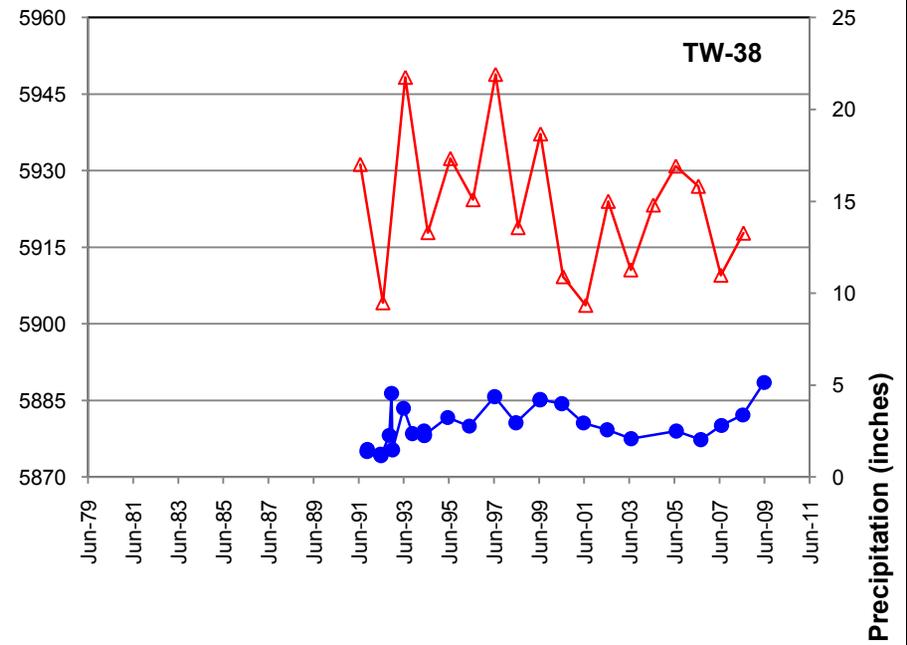
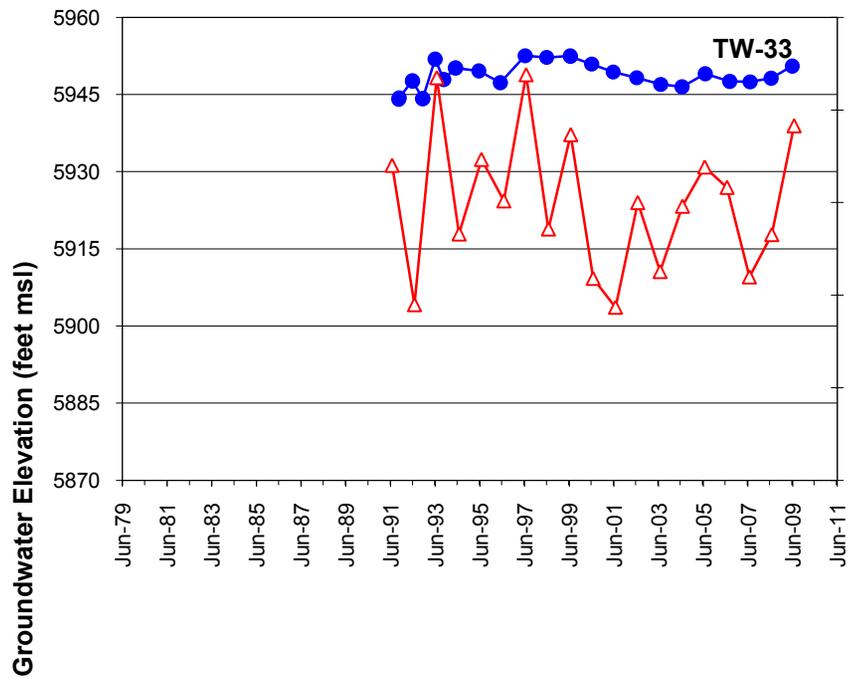


Sample Date

FILE NAME App I Groundwater Elevations 2009.xls



TITLE		Groundwater Elevation in Southwest Corner Wells		FIGURE I-12	
	CLIENT	Monsanto Company		DRAWN	FV
	PROJECT	Monsanto Groundwater Monitoring		CHECKED	MPK
	PROJECT NO.	913-1101.605A	DATE	19-Oct-09	REVIEWED



Sample Date

FILE NAME App I Groundwater Elevations 2009.xls



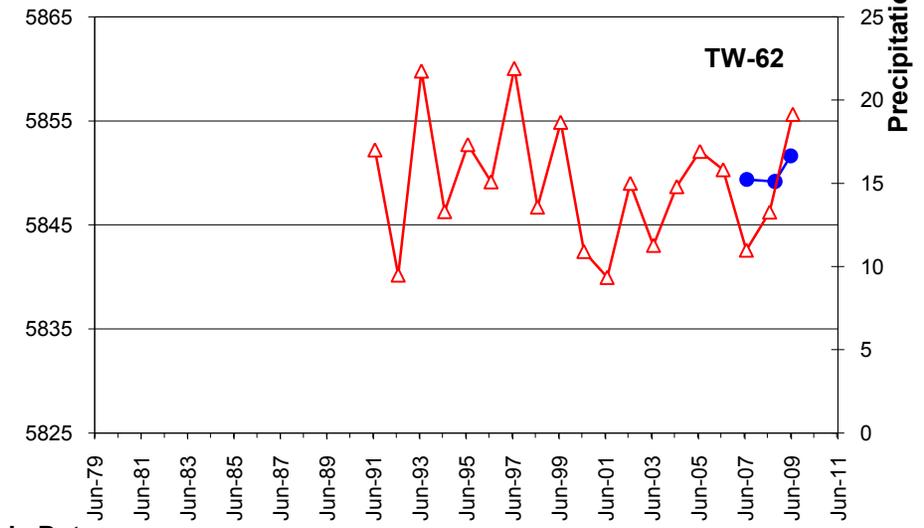
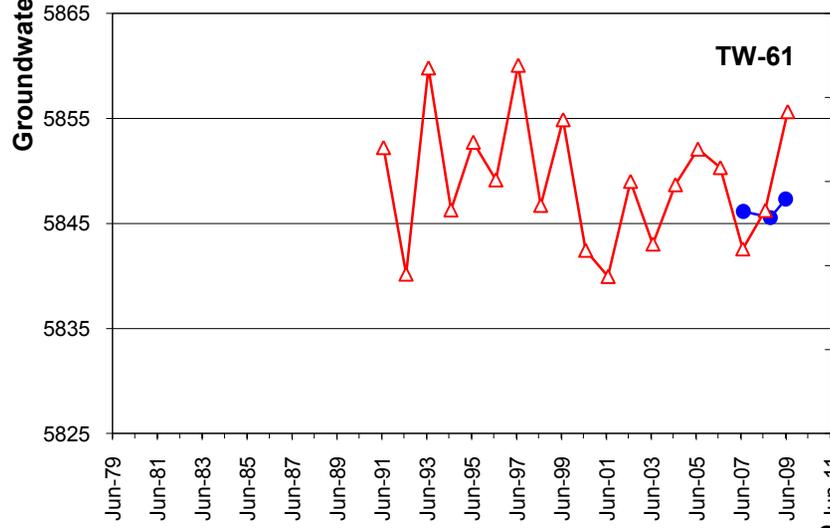
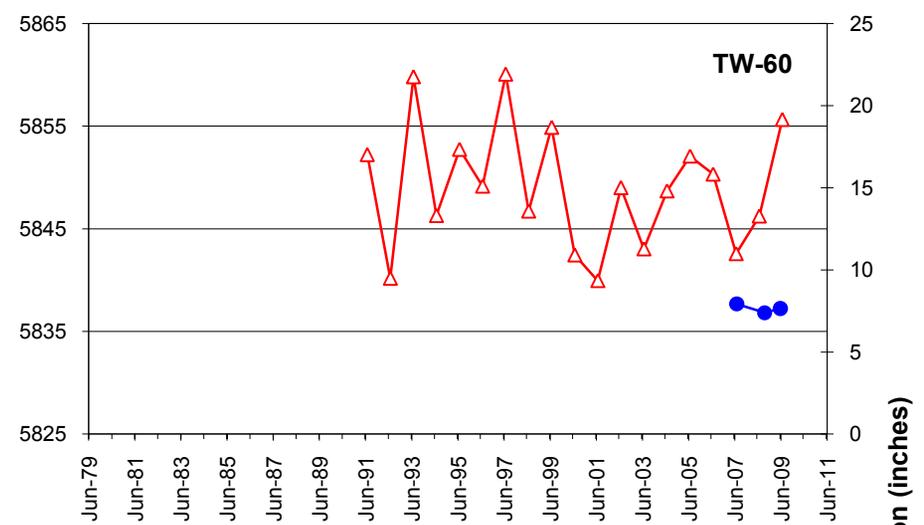
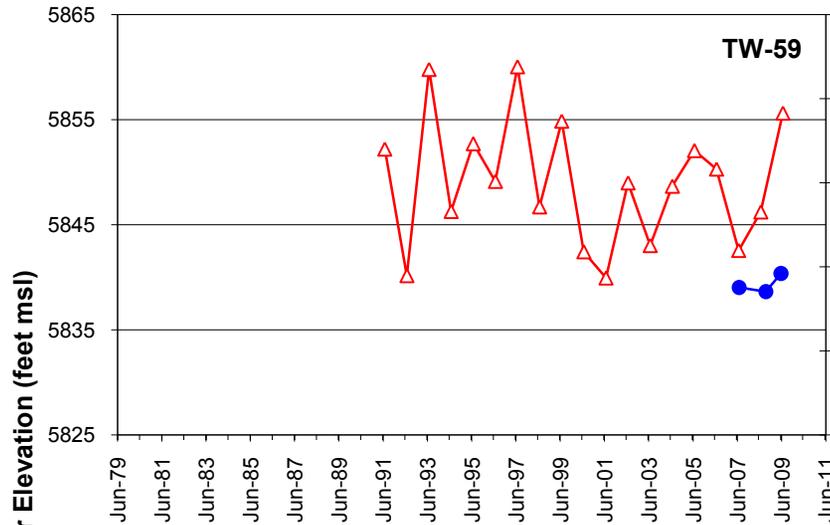
TITLE

Groundwater Elevation in East Wells

FIGURE I-13

- Groundwater Elevations
- ▲ Water Year Precipitation

CLIENT	Monsanto Company	DRAWN	FV
PROJECT	Monsanto Groundwater Monitoring	CHECKED	MPK
PROJECT NO.	913-1101.605A	DATE	19-Oct-09
		REVIEWED	DB



FILE NAME App I Groundwater Elevations 2009.xls

Sample Date



Groundwater Elevation in 2007 Monitoring Wells

FIGURE I-14

● Groundwater Elevations ▲ Water Year Precipitation

CLIENT	Monsanto Company
PROJECT	Monsanto Groundwater Monitoring
PROJECT NO.	913-1101.605A
DATE	19-Oct-09

DRAWN	FV
CHECKED	MPK
REVIEWED	DB

APPENDIX J
EVALUATION OF NATURAL ATTENUATION CONTROLS
MONSANTO SODA SPRINGS SITE



TECHNICAL MEMORANDUM

Date: November 2, 2009

Project No.: 913-1101.605

To: Bob Geddes

Company: Monsanto

From: Felipe Vasquez, Cheryl Ross and David Banton

cc: Bill Wright, Stochos Environmental, Inc.

Email: Robert.L.Geddes@Monsanto.com

RE: EVALUATION OF NATURAL ATTENUATION CONTROLS – MONSANTO SODA SPRINGS SITE

1.0 INTRODUCTION

The Record of Decision (ROD) for the Monsanto site selected monitored natural attenuation with institutional controls as the groundwater remedy (EPA, 1997). In a communication with Monsanto, EPA has commented that natural attenuation may not be effective at preventing the migration of some constituents of concern (COCs), at concentrations exceeding remedial goals, offsite. The objective of this memorandum is to evaluate the Monsanto groundwater quality data to determine the potential for natural attenuation of the five COCs: cadmium (Cd), manganese (Mn), fluoride (F), selenium (Se) and nitrate (NO₃).

2.0 BACKGROUND

The ROD established groundwater remediation goals for five COCs at the Monsanto site: cadmium, fluoride, nitrate, selenium and manganese (EPA, 1997). These remediation goals are the Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act for all constituents with the exception of manganese (Table 1). The manganese limit is a risk-based concentration.

TABLE 1
Remediation Goals for Constituents of Concern (COCs)

Constituent of Concern (COC)	Remediation Goal (mg/L)
Cadmium (Cd)	0.005
Fluoride (F)	4
Nitrate (as N) or Nitrate as (NO ₃)	10/44
Selenium (Se)	0.05
Manganese (Mn)	0.18

The following three major source zones have been identified on site: the former Underflow Solids Ponds, the Northwest Pond, and the Old Hydroclarifier. The Northwest Pond (now a permitted solid waste landfill) and the Old Hydroclarifier were located to the east of the Monsanto Fault. The Underflow Solids

Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052 USA
Tel: (425) 883-0777 Fax: (425) 882-5498 www.golder.com

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Ponds were located on the west side of the Plant and were closed in 1987/1988 by filling with molten slag and placement of a bentonite cap.

The primary hydrostratigraphic zones underlying the Monsanto Plant include the Upper Basalt Zone (UBZ) and the Lower Basalt Zone (LBZ). The principal aquifer is the UBZ, which extends to a depth of about 100 feet below ground surface (bgs) below the plant, and it is the aquifer affected by Monsanto activities. The depth to the water table ranges from 20 feet bgs in the northeast corner to 100 feet bgs in the center of the plant. Groundwater flow in the UBZ is a function of faulting, regional hydrogeologic conditions, and pumping of the plant production wells. The UBZ is broken into smaller regions (UBZ-1 through UBZ-4), based on hydrogeological controls and groundwater quality. UBZ-2 and UBZ-4 have been identified as the most impacted groundwater zones within the UBZ since the three major source areas have been identified within these zones: the former Underflow Solids Ponds (UBZ-2), and the Northwest Pond and the Old Hydroclarifier (UBZ-4; Golder, 2003). This memorandum therefore focuses on groundwater quality conditions in the UBZ-2 and UBZ-4.

The UBZ monitoring wells that are located in proximity to and down-gradient of each source area are listed in Table 2 and shown in Figure 1.

TABLE 2
Source Area Monitoring Wells

Source	Upper Basalt Zone Wells (UBZ)	Distance Down-gradient from Source Area (ft)
Northwest Pond	TW-16	125
	TW-17	125
Old Hydroclarifier	TW-40	60
Former Underflow Solids Ponds	TW-22	1,115
	TW-24	1,115
	TW-37	<50

This memorandum evaluates the temporal and spatial trends in groundwater quality for the UBZ source zone area wells and downgradient wells to assess the mobility of the COCs and the potential for natural attenuation.

3.0 EPA NATURAL ATTENUATION GUIDANCE

The Environmental Protection Agency (EPA) provides guidance for monitoring the natural attenuation of inorganic contaminants in groundwater. The document titled “*Monitored Natural Attenuation of Inorganic Contaminants in Ground Water*” (EPA, 2007), provides information on the different chemical and physical mechanisms responsible for natural attenuation for a number of COCs. It is a technical document that

provides guidance in the determination of whether natural attenuation can be considered to be effective as a remedial approach for inorganic contaminants in groundwater.

The EPA defines natural attenuation processes as those that “*reduce mass, toxicity, mobility, volume or concentration of contaminants*”. The document focuses on selected contaminants (i.e., arsenic, cadmium, chromium, copper, lead, nickel, nitrate, perchlorate, and selenium) based on: their presence at Superfund sites; their identification as primary COCs based on toxicity, industrial use, and frequency of occurrence at Superfund sites; and, their geochemical behavior, considering toxicity, ion charge, transport behavior, and redox chemistry. The EPA document therefore addresses three of the five COCs at the Monsanto Site (cadmium, nitrate and selenium).

The attenuation of contaminants in groundwater may occur due to a number of chemical, biological, and physical processes, including dispersion, sorption, ion exchange, secondary mineral precipitation, biodegradation, and redox reactions. Dispersion in a homogeneous isotropic aquifer will affect all parameters equally. The degree to which the other processes in combination affect the mobility of a particular constituent defines the constituent’s transport velocity.

For inorganic constituents, the primary attenuation mechanisms are often sorption onto aquifer solids and secondary mineral precipitation. Both these mechanisms result in partitioning of the constituent from the aqueous to the solid phase. For inorganic constituents, the EPA therefore considers the existence of two distinct plumes within the boundary of the groundwater plume as follows (EPA, 2007, Figure 2): (1) a dissolved mobile (i.e., faster) plume; and, (2) a solid phase or immobile (i.e., slower) plume resulting from partitioning of the contaminant to the solid phase. The dissolved or mobile plume includes contaminants associated with mobile colloids.

For inorganic contaminants, the EPA defines the following two objectives for effective natural attenuation (EPA, 2007):

- Demonstration of removal of the inorganic contaminant from the dissolved phase leading to a stable or shrinking groundwater plume; and,
- Demonstration of stabilization of the inorganic contaminant immobilized onto aquifer solids such that the future re-mobilization will not occur to a level that threatens the health of environmental receptors.

3.1 EPA Recommended Approach to Site Characterization

EPA recommends the following four-tiered analysis approach for the collection and evaluation of data to assess the effectiveness of natural attenuation (EPA, 2007).

1. Demonstration that the groundwater plume is not expanding and that sorption¹ of the contaminant onto aquifer solids is occurring where immobilization is the predominant attenuation process;
2. Determination of the mechanism and rate of the attenuation process;
3. Determination of the capacity of the aquifer to attenuate the mass of contaminant within the plume and the stability of the immobilized contaminant to resist re-mobilization; and,
4. Design of a performance monitoring program based on the mechanistic understanding developed for the attenuation process, and establishment of a contingency plan tailored to site-specific characteristics.

For each step, the EPA defines the objectives and the types of site-specific data required for the analysis. This memorandum includes Tier I and II analyses.

3.2 Constituent Fate and Transport

The fate and transport of a constituent in groundwater is a function of the physical, chemical, and biological characteristics of the aquifer. The importance of each of these factors on constituent mobility is summarized in Table 3.

TABLE 3
Constituent Fate and Transport

Physical Transport Mechanism	Groundwater flow and solute movement	<p>Advection: Advection is the movement of a solute with the bulk movement of groundwater and is the primary solute transportation mechanism.</p> <p>Dispersion: During advection, the solute will spread to occupy a larger portion of the flow field in the direction of the groundwater flow and perpendicular to it. This results in mixing of the groundwater reducing the solute concentration.</p>
	Colloidal transport of inorganic constituents	<p>Presence of colloids, particles of a diameter less than 10 microns, is a possible transport mechanism in groundwater. Under the appropriate conditions may be significant for the transport of some constituents, affecting migration and transport model predictions. Although colloid migration is likely to occur, it is not considered to be a dominant mechanism for constituent migration.</p>
Sorption to aquifer solids	Adsorption	<p>Adsorption occurs when a dissolved constituent becomes attached to the surface of a solid present in the aquifer. The strength of the binding will depend upon the characteristics of the adsorbate, the sorbent, and the groundwater chemistry.</p>
	Precipitation	<p>Precipitation is a result of the oversaturation of a mineral phase in solution. It is a very important immobilization mechanism for inorganic compounds in groundwater. Precipitation can involve four different processes: precipitation from solution, co-</p>

¹ Sorption is used to collectively represent all mechanisms that result in partitioning of the constituent from the aqueous to the solid phase.

		precipitation, surface precipitation, and mineral transformation (evolution of a metastable precipitate towards a more stable mineral phase). All processes present different characteristics, but they all produce a reduction in the levels of constituents in solution.
Microbial Impact	Microbial control on redox state	The metabolic reaction of microorganisms may exert significant influence in the redox conditions of the aquifer, which at the same time can control the precipitation-dissolution reactions, which, in turn, can influence the adsorption properties of some constituents.
	Constituent speciation and attenuation	Through metabolic reactions, microbes are able to transform metals and metalloids, thereby affecting constituent mobilization/immobilization, precipitation, adsorption, and intracellular accumulation. The main mechanisms by which microbes may transform metals include: oxidation and reduction reactions, biosorption, and methylation and demethylation processes.

The factors most likely to affect the mobility of COCs at the Monsanto site, based on the information provided by the EPA (2007) and previous reports (Golder, 2002), are summarized in Table 4.

TABLE 4
COC Natural Attenuation Controls

NATURAL ATTENUATION MECHANISMS					
Constituent	Dispersion	Colloidal transport	Adsorption	Precipitation	Microbial impact (redox conditions)
Cadmium (Cd)	X	X	X	X	
Manganese (Mn)	X			X	X
Fluoride (F)	X		X	X	
Selenium (Se)	X		X	X	X
Nitrate (NO₃)	X				X

A brief summary of the mobility of each of the COCs follows. Controls on mobility occurring at the Monsanto site are discussed in Section 5.

- **Cadmium** – Cadmium exists in the +2 valence state. It is adsorbed by oxides of aluminum, iron, and manganese and also by calcite. The adsorption edge for cadmium occurs at a higher pH than that of lead, copper, and zinc (EPRI, 1984). In groundwater, otavite (CdCO₃) precipitation may control cadmium concentrations. Review of three widely accepted geochemical databases (WATEQ, PHREEQC, and MINTEQ.V4) indicates a range of solubility constants for otavite from 10^{-13.74} to 10⁻¹². Mineral and organic particles can participate in colloidal transport of cadmium and can be significant in groundwater systems. Cadmium adsorbed to colloidal hydrous ferric oxides may subsequently desorb due to changes in pH or oxidation-reduction potential (EPA, 2007).
- **Manganese** – Manganese may exist in five valence states: +2, +3, +4, +6, and +7. Manganese mobility is redox dependent, exhibiting greater mobility under reduced

conditions. Under oxidizing conditions, aqueous manganese concentrations may be reduced by the precipitation of oxides and hydroxides. Manganese concentrations may also be controlled by the precipitation of rhodochrosite (MnCO_3 , EPRI, 1984).

- **Fluoride** – Fluoride exists in the -1 valence state. In calcareous soils and sediments, fluoride concentrations may be controlled by the mineral fluorite (CaF_2). Fluoride is not strongly adsorbed by soils; however, adsorption is greatest at pH values between approximately 4 and 6.5. Fluoride forms strong complexes with aluminum (EPRI, 1984).
- **Selenium** – In nature, selenium can exist in four valence states: -2 , 0 , $+4$ and $+6$. In oxidized waters at neutral pH, selenium will exist as an anion. Selenium ($+6$) will be predominantly present as SeO_4^{2-} and selenium ($+4$) will be present as HSeO_3^- . Above approximately pH 7.6, selenium ($+4$) is predominantly present as SeO^{2-} . Selenate, selenium ($+6$), species are considered quite mobile, especially in alkaline conditions. Selenite, selenium $+4$, species are significantly less mobile. Reducing environments favor the formation of elemental selenium, selenium (0), and selenide, selenium (-2). Elemental selenium is insoluble. Selenide, which forms sparingly-soluble minerals such as FeSe_2 and FeSe , is immobile in most aquifers.

Selenium will adsorb to both aluminum and iron hydrous oxides and amorphous aluminosilicates. Because selenium exists as an anion in solution, maximum selenium adsorption occurs at low pH, reducing its mobility. Selenium ($+4$) is reported to adsorb more strongly to hydrous iron oxides than selenium ($+6$). The opposite behaviour has been observed for clay minerals, that is, $\text{Se}(+6)$ is more strongly adsorbed than $\text{Se}(+4)$. Sulfate has been reported to compete with selenium for adsorption sites (EPRI, 1984).

- **Nitrate** – Nitrate is mobile in groundwater and is transported in groundwater systems with little or no retardation (Freeze and Cherry, 1979).

4.0 SITE GROUNDWATER QUALITY

Groundwater flow in the UBZ is influenced by faulting, regional hydrogeological conditions, and pumping of plant production wells. The groundwater flow direction beneath the site is generally from north to south paralleling the geological structures.

4.1 UBZ-2 Trends

Groundwater velocity in the UBZ-2 is estimated at approximately 1.3 feet/day (Golder, 2008). Therefore, the groundwater travel time from the source area (former Underflow Solids Ponds) TW-37 to TW-54 (located south of the Plant Fence Line) is estimated at approximately 10 years.

Table 5 presents a summary of the general groundwater quality trends over the last 10 years in the UBZ-2 wells for the five COC's, and chloride and sulfate. Chloride and sulfate are included because they are indicators of mobile groundwater constituent transport. Wells are listed in order of the direction of groundwater flow (i.e., from upgradient to downgradient). General trends were determined by a visual assessment of chemical hydrographs and are classified as increasing (\uparrow), decreasing (\downarrow) or stable ($=$). For several wells, two trends are shown. These represent the general trend over the first and the second five-year period. The three wells located in proximity to the former Underflow Solids Ponds are shaded gray. Table 5 also presents the most recent groundwater quality results from May/June 2009. COC concentrations that exceed the remediation goal are shown in bold type.

TABLE 5
Current UBZ-2 Constituent Concentrations and Groundwater Quality Trends Over the Last 10 Years

Well	Distance from Source (ft)	Cl (mg/L)	SO ₄ (mg/L)	NO ₃ as N (mg/L)	Cd (mg/L)	Mn (mg/L)	F (mg/L)	Se (mg/L)
Remedial Goal (mg/L)				10	0.005	0.18	4	0.05
TW-57	850 (Up)	= 15	↓ 69	= 1.3	= ND	= ND	= 0.43	= 0.004
TW-37	Source (<50)	↑ 508	↑= 317	↑= 9.4	↑ 0.96	= 0.71	↓ 9.3	=↓ 0.23
TW-22	1,115	↓= 26	↓= 130	↓= 4.3	= 0.023	= 0.79	↓= 3.0	↓ 0.13
TW-24	1,115	= 80	↓= 179	↓= 5.0	= 0.29	= 0.28	↓= 4.6	↓ 0.23
TW-39	3,600	↓↑ 135	↓↑ 647	↓↑ 8.6	= 0.017	= ND	↓↑ 3.3	↓↑ 0.43
TW-35	3,600	= 36	= 127	= ND	= 0.0003	= 0.15	= 0.15	= 0.0008
TW-20	3,750	↑↓ 84	↑↓ 467	↑↓ 8.8	↑↓ 0.003	= ND	= 2.1	↑↓ 0.10
TW-34	3,750	= 35	= 148	= 0.09	= ND	= 0.18	= 0.38	= 0.005
TW-54	4,600	↑= 82	↑= 377	↑↓ 6.8	= ND	= 0.003	↓↑ 2.8	↑=↓ 0.14
TW-55	4,700	= 45	↑= 161	= 3.1	= ND	= ND	=↑ 0.71	↑↓ 0.03
TW-62	5,700	= 76	= 344	= 4.9	= ND	= ND	= 0.23	↑ 0.11
TW-59	6,900	= 64	= 279	= 5.0	= ND	= ND	= 0.23	↑ 0.13
Lewis	6,750	= 45	= 151	= 9.0	= ND	= ND	= 0.62	= 0.14

ND – non-detect.

Values shown in bold type exceed the remediation goal. No remedial goal for chloride and sulfate.

Chemical hydrographs for selected wells from Table 5 are shown in Figures 3 through 8. For each constituent, an “a” and “b” figure is presented. The “a” series figures present the water quality data as measured. For the “b” series figures, the temporal scale for some wells has been modified based on the estimated groundwater velocity to allow for direct comparison of the concentration trends among wells. For example, Figure 3a presents chloride, sulfate, and nitrate concentrations for the three source area wells (TW-37, TW-22 and TW-24). Figure 3b presents the same data; however, results for well TW-37 have been projected forward in time to show the concentrations assuming the plume migrated from TW-37 to TW-22/TW-24 over a period of 2.8 years (consistent with the estimated groundwater velocity).

Concentrations of all constituents have remained stable in the upgradient (background) well (TW-57). Two of the source area wells (TW-22 and TW-24) currently demonstrate stable or decreasing concentration trends for the seven constituents listed in Table 5. Wells TW-22 and TW-24 generally

report similar groundwater quality trends and concentrations. Figure 3a illustrates the similarity in TW-22 and TW-24 chloride, sulfate, and nitrate concentrations. The third source area well, TW-37, currently demonstrates stable or decreasing concentration trends for sulfate, nitrate, selenium, fluoride, and manganese; however, chloride and cadmium concentrations are currently increasing.

The chloride concentration measured at TW-37 in May 2009 (508 mg/L) was higher than concentrations measured historically. In addition to chloride, magnesium concentrations are also increasing in TW-37. A Piper plot of TW-37 groundwater major ion chemistry over time shows a distinct change in the major ion chemistry at this well beginning in approximately 2006 (Figure 9a; alkalinity and other major cations were not measured from 2002 to 2006). TW-37 water quality has evolved from a Ca-Mg-HCO₃-SO₄ type water to a Ca-Mg-Cl-SO₄-HCO₃ type water. The major ion signature of TW-37 is distinct from the other UBZ-2 wells (Figure 9b). The observed increase in chloride at TW-37, in the absence of concentration increases for other constituents typically associated with the former Underflow Solids Ponds source, may be indicative of a new source of chloride loading to the UBZ-2.

Magnesium chloride is used for dust control on the roads at the Plant. Applications have increased from two applications per year prior to 2006 to three times a year. Magnesium chloride is highly soluble and is transported through the vadose zone by infiltrating water (Heffner, 1997). The movement is largely dependent upon the rate and frequency of rainfall, the drainage characteristics of the area, and the chemical and physical nature of the soil. During periods of light rainfall (i.e., low infiltration), the magnesium chloride remains as a hydrated complex and moves vertically within the soil surface moisture. During wet periods, magnesium chloride will penetrate to greater depths. Lateral movement occurs, but at a much lower rate. With rainfall, and depending on the permeability of the soil, magnesium chloride can migrate considerable distances either as runoff or as an infiltrating fluid reaching groundwater.

Based on the water quality observed at TW-37, it appears that the application dust suppressant may have impacted the quality of the groundwater in some areas of the Monsanto site. As shown on Figure 9a, the major anion signature at TW-37 has changed during the past five years. During the late 1990s and early 2000s, chloride concentrations at TW-37 were stable at approximately 30 mg/L. Since the mid 2000s, chloride concentrations have increased to 500 mg/L. During this same time period, magnesium concentrations have increased from approximately 60 mg/L to 125 mg/L. The observed coincident increase in chloride and magnesium concentrations may be the result of infiltration of dust suppressant compounds into the groundwater system.

In addition to chloride and magnesium, calcium and cadmium concentrations have also increased in recent years at TW-37. The observed increases in chloride, magnesium and calcium could indicate loading from a dust suppressant source. If a dust suppressant is the source of the observed chloride trends, the observed increases in cadmium concentrations could be attributed to dissolution of previously precipitated otavite (cadmium carbonate). During the late 1990s and early 2000s, TW-37 cadmium

concentrations were stable at approximately 0.35 mg/L. The recent increase in chloride concentrations at TW-37 would result in an increase in the solubility of otavite promoting dissolution of this mineral phase (see Figure 13).

In addition to TW-37, several other wells have shown increases in chloride concentrations (albeit not as large as those observed at TW-37) beginning in 2005. Increasing magnesium concentrations have also been observed in some of these wells. Table 6 presents the wells that exhibit changes in chloride and magnesium trends during the last ten years.

TABLE 6
Wells with Changes in Chloride and Magnesium Trends

UBZ-2			UBZ-4		
Well	Cl	Mg	Well	Cl	Mg
Lewis	=	↑(99-05) ↓(06-09)	PW-01	↑(05 -09)	↑(06 -09)
TW-20	↑(99-05) ↓(06-09)	↑(99-05) ↓(06-09)	PW-02	↑(05 -09)	=
TW-24	↓(05-08) ↑(08-09)	↓(05-07) ↑(07-09)	PW-03	↑(05 -09)	↑(04 -09)
TW-34	=	↑(99-09)	PW-04	=	=
TW-37	↑(05 -09)	↑(05-09)	TW-16	↑(05 -09)	=
TW-39	↑(05 -09)	=	TW-17	↓(01-09)	↑(99 -09)
TW-54	=	↓(05-09)	TW-29	↑(05 -09)	=
TW-55	=	↑(02 -07)	TW-40	↑(03 -09)	=
TW-57	=	↓(04-09)	TW-50	↑(02 -09)	↑(07 -09)

The groundwater quality at wells which exhibit a coincident increase in magnesium and chloride concentrations may be affected by dust suppressant. In the UBZ-4, increased chloride and magnesium concentrations in PW-01, PW-03 and TW-50 suggest possible impacts from dust control agents starting in most cases about five years ago. In addition to chloride and magnesium, sulfate concentrations also currently demonstrate an increasing trend at TW-50 and PW-01 and PW-03; whether this increase is attributable to dust suppression or other factors is not known at this time.

Table 5 shows which UBZ-2 wells currently exceed the remedial goals for the five COCs. Wells TW-35 and TW-34 are screened in deeper basalt interflows between the UBZ and LBZ. Groundwater quality in these wells has been stable over the period of record indicating no significant impact to groundwater quality from the former Underflow Solids Ponds. These wells are therefore excluded from the following discussion of COC concentration trends.

- **Nitrate** – Nitrate concentrations are below the remedial goal in all wells listed in Table 5. The nitrate plume extends to the southern-most wells (TW-59 and Lewis).
- **Cadmium** – Cadmium concentrations in the source area wells currently range from approximately 0.02 (TW-22) to 1 mg/L (TW-37). Groundwater cadmium concentrations decrease with distance from the source area wells. Cadmium is below detectable limits in the southern-most wells (TW54, TW55, TW-62, TW-59, and Lewis).

- **Manganese** - Manganese concentrations have been relatively stable for the last 10 years in all the UBZ-2 monitoring wells. Concentrations in the source area wells currently range from approximately 0.3 (TW-24) to 0.8 mg/L (TW-22). Groundwater manganese concentrations are below the remedial goal in the downgradient wells.
- **Fluoride** – Fluoride concentrations in the source area wells currently demonstrate a stable or decreasing trend. Fluoride concentrations are currently stable in most of the downgradient wells and are below the remedial goal.
- **Selenium** – Selenium concentrations in the source area wells currently range from 0.1 (TW-22) to 0.2 mg/L (TW-24 and TW-37) and demonstrate a stable or decreasing trend. Similar to nitrate, the selenium plume extends to the southern-most wells.

4.2 UBZ-4 trends

Table 7 presents the trends for the last 10 years in selected wells in the UBZ-4 area for the COCs, and for chloride and sulfate. Wells are listed in order of the direction of groundwater flow (i.e., from upgradient to downgradient). General trends were determined by a visual assessment of chemical hydrographs and are classified as increasing (↑), decreasing (↓) or stable (=). For several wells, two trends are shown. The three wells located closest downgradient of the sources are shaded gray. Table 7 also presents the most recent groundwater quality results from May/June 2009. COC concentrations that exceed the remediation goal are shown in bold type.

TABLE 7
Current UBZ-4 Constituent Concentrations and Groundwater Quality Trends Over the Last 10 Years

Well	Source Area	Distance from Source (ft)	Cl (mg/L)	SO ₄ (mg/L)	NO ₃ as N (mg/L)	Cd (mg/L)	Mn (mg/L)	F (mg/L)	Se (mg/L)							
	Remedial Goal (mg/L)				10	0.005	0.18	4	0.05							
TW-29	Background	60 (Up)	↑	85	=	93	=	4.4	=	ND	=	ND	=	0.20	=	0.009
SO2 N	Background	1,800 (Up)	=	23	=	44	↑↓	15.3	=	ND	=	ND	=	0.46	=	0.003
TW-48		1,250 (Up)	=	14	=	68	↑	4.8	↑↓=	ND	=	ND	=	0.24	=	0.002
PW-04	Background	1,100 (Up)	=	13	=	67	=	4.2	=	ND	=	ND	=	0.26	=	0.002
TW-49		1,050 (Up)	=	23	=	81	=	3.6	=	ND	=	ND	=	0.25	=	0.002
TW-16	NW Pond	125	=↑	92	=↑	197	=↑	5.0	=	0.4330	=	ND	↓=	2.00	=↓	0.132
TW-17	NW Pond	125	↓	2	↓	163	=	0.1	=	0.0028	↑	2.810	=	1.50	=	0.007
TW-50		1,400	↑	213	=↑	452	=	1.0	↑↓	0.0055	↑	0.610	=	0.46	↑	0.046
TW-40	Old Hydroclarifier	60	=↑	446	↓↑	860	↑	19.3	=	2.02	=	0.027	↓	2.92	=↓	0.571
TW-43		30	=	310	=	654	↑↓	11.9	=	1.67	=	0.005	=	5.68	=↓	0.578
TW-26		1000	↓	297	↓↑	435	↑	4.96	=	ND	↓=	0.55	↑	1.98	↑=	0.298
PW-01		800	↑	185	↓↑	229	↑	4.9	↓↑	0.0589	=	ND	=	0.83	=	0.069
PW-02		1,350	↑	78	=↑	171	↑	4.6	=↑	0.0060	=	ND	=	0.44	=	0.023
PW-03		1,600	=↑	92	=↑	161	↑	4.3	=	0.0016	=	ND	=	0.49	=	0.017

ND – non-detect.

Values shown in bold type exceed the remediation goal. No remedial goal for chloride and sulfate.

During the last 10 years, 7 of the 14 wells located in the UBZ-4 have shown an increasing trend in the chloride concentration, however only two of them have shown similar trend in cadmium, and one has a presently decreasing trend (TW-50). The increasing trends for PW-01, 02, and 03 could be explained by the arrival of a chloride plume, while wells TW-16, 40, and 50 are located near the source areas. The increasing trend for well TW-29 would not be explained by arrival of a plume since it is located upgradient from the source areas.

Sulfate has demonstrated increasing concentration trends at the same wells as chloride with the exception of TW-29, well located in the northwest corner of the plant, with the increases beginning around 2007 for all wells. Of the 14 wells presented in Table 7, only two wells (TW-17 and TW-50) show increases in manganese, the rest have demonstrated stable concentration trends over the last ten years. Fluoride has demonstrated stable concentration trends during the last 10 years with wells TW-16 and TW-40 showing decreases, and well TW-26 showing increases.

The following is a summary of the COC concentration trends over the last ten years:

- **Nitrate** – Nitrate concentrations are below the remedial goal in almost all wells listed in Table 7. Exceptions are well SO2-N (a background well), TW-40, and TW-43. The nitrate plume extends to the west of the source not affecting other wells.
- **Cadmium** – Measured cadmium concentrations in the two source area wells currently range from 0.0028 (TW-17) to 2.02 mg/L (TW-40). Groundwater cadmium concentrations decrease with distance from the source area wells.
- **Manganese** – Manganese concentrations have been relatively stable for the last 10 years in all the UBZ-4 monitoring wells, with the exception of source area well TW-17 and the downgradient well TW-50. The current concentration in the source area well TW-17 is approximately 2.8 mg/L. With the exception of TW-50 and TW-26, manganese concentrations are below the remedial goal in the downgradient wells.
- **Fluoride** – Fluoride concentrations in the source area wells currently demonstrate a stable or decreasing trend. Fluoride concentrations are currently stable in most of the downgradient wells and are below the remedial goal, with the exception of well TW-43, where the concentration is approximately 5.7 mg/L.
- **Selenium** – Selenium concentrations in the source area wells zones currently range from 0.007 (TW-17) to 0.57 mg/L (TW-40) and demonstrate a stable or decreasing trend.

5.0 NATURAL ATTENUATION ASSESSMENT

5.1 Plume Stabilization

The establishment of a stable or steady-state constituent plume is a primary indication that natural attenuation is occurring within a groundwater system. To establish steady-state conditions, source concentrations (and loading) must be stable or declining.

Within the UBZ-2, two of the source area wells demonstrate stable or decreasing concentration trends (i.e., TW-22 and TW-24). The third source area well (TW-37) currently demonstrates increasing concentration trends for the COCs cadmium and nitrate, and also for chloride and sulfate.

In the UBZ-4, down-gradient of the Northwest Pond, (wells TW-16 and 17), cadmium, fluoride and selenium show stable or decreasing trends. In TW-16, chloride, sulfate and nitrate show an increasing trend, while manganese is stable. TW-17 shows an increasing trend only for manganese, while chloride, sulfate and nitrate have shown stable or decreasing trends.

Source area well TW-40 has shown increasing trends for chloride, sulfate and nitrate, while cadmium, manganese, fluoride and selenium have stable or decreasing trends.

Isopleth maps for the five COCs created from 2002 and 2007 groundwater quality data were presented in the second five year review report (Figures 7 to 14; Golder, 2008). These figures were used to assess the stability of constituent plumes between 2002 and 2007. A visual assessment of the relative stability of each contaminant plume was made and is presented on Table 8.

TABLE 8
Plume Stability for COCs

Constituent	Figures	Comment on Plume Stability	
		UBZ-2	UBZ-4
Nitrate	10a and 10b	advancing – unstable	advancing – unstable (hydraulic control)
Selenium	11a and 11b	advancing – unstable	hydraulic control
Cadmium	7a and 7b	stable	stable
Fluoride	8a and 8b	stable	stable
Manganese	9a and 9b	stable	stable

On the basis of plume stabilization, natural attenuation is likely not occurring for nitrate and selenium. The elevated concentrations of nitrate in background wells indicates a nitrate source from agricultural activities up-gradient of the Plant affects groundwater on and to the south of the Plant site. This includes groundwater quality in both the UBZ-2 and UBZ-4 zones. The former sewage lagoon was a source of nitrate but was closed by capping with molten slag over ten years ago. It is believed that off-site agricultural activities are a significant contributor to on-site elevated nitrate concentrations.

5.2 Dispersion

Dispersion and diffusion are two processes that can result in a reduction in constituent concentrations. Diffusion is generally a slow process, and in areas of high groundwater flow velocities such as the Monsanto site, the effect of diffusion on solute concentrations is generally masked by the effect of groundwater movement. Dissolved constituents are transported with the groundwater flow (advective transport). Differences in groundwater velocity along a flow path as well as variable flow path lengths

result in dispersion. Dispersion (or mixing) results in a decrease in solute concentration and occurs in both the direction of groundwater flow (longitudinal dispersion) and in directions normal to the groundwater flow path (transverse horizontal and transverse vertical dispersion).

Chemical hydrographs for constituents that are transported conservatively (i.e., at the average groundwater velocity) were evaluated to assess the effect of dispersion on all constituent concentrations. Time adjusted chloride concentration trends for the UBZ-2 aquifer (Figures 3b and 6b) indicate little to no reduction in chloride concentrations along the groundwater flow path. Similar behavior is observed for sulfate and nitrate. Dispersion is therefore not significant within the UBZ-2 aquifer.

In the UBZ-4 aquifer, there is a considerable reduction in sulfate, chloride, and nitrate between the source area well TW-40 and downgradient pumping wells PW-01 and PW-02 (Figure 10). Dispersion is occurring given the lower concentrations observed in the downgradient wells. Much of this dispersion is likely attributed to greater mixing due to pumping.

5.3 Sorption

The process by which a solute becomes distributed between the groundwater and the aquifer materials is called partitioning, described by a partition, or distribution, coefficient (K_d). The electrical charge of a dissolved constituent in solution significantly influences the partitioning of ions in groundwater. In general, the degree of retardation is proportional to the charge (i.e., charged particles are more likely to be adsorbed than neutral particles, and particles with higher charges will be retained more effectively than particles with a lower charge).

Although attenuation due to sorption was not specifically evaluated in this study, the literature partition coefficients presented in Table 9 provide an indication of the potential for attenuation due to sorption.

TABLE 9
Literature COC Partition Coefficients

Literature Partition Coefficients (mL/g)		
Constituent	Battelle (1989) ^a	Dragun (1988) ^b
Cadmium	14.9	1.3 - 27
Fluoride	0	-
Selenium	5.91	1.2 – 8.6 Se(IV)
Nitrate	0	-
Manganese	16.5	0.2 – 10,000

^a pH range of 5 to 9, <10% adsorbent (clay, organic matter and aluminum oxyhydroxides)

^b K_d ranges for soils and clays.

5.4 Mineral Precipitation

Mineral precipitation and dissolution reactions may control the mobility of constituents in groundwater. Geochemical modeling using PHREEQC (Parkhurst and Appelo, 1999) was conducted to evaluate potential mineral precipitation controls on constituents in groundwater. PHREEQC is an equilibrium mass transfer code developed by the United States Geological Survey (USGS). PHREEQC was used to calculate the aqueous speciation and stability of minerals with respect to dissolved constituents in groundwater. The potential for mineral precipitation was assessed using the saturation index (SI) calculated according to Equation 1.

$$SI = \log (IAP/K_{sp}) \quad \text{(Equation 1)}$$

The saturation index is the ratio of the ion activity product (IAP) of a mineral and the solubility product (K_{sp}). An SI greater than zero indicates that the water is supersaturated with respect to a particular mineral phase and, therefore, mineral precipitation may occur. An SI less than zero denotes undersaturation, and the mineral in question will have a general propensity to dissolve. An SI close to zero may be indicative of a solubility control. Following identification of minerals that may be reacting in an aquifer, the likelihood of precipitation/dissolution in the groundwater system is evaluated based on kinetic considerations.

Speciation modeling was conducted for a number of wells along a groundwater flowpath in both the UBZ-2 and UBZ-4 zones to evaluate the potential for mineral precipitation and dissolution reactions to control COC concentrations. Table 10 summarizes the wells for which speciation modeling was conducted over time.

TABLE 10
Speciation Modeling - Monitoring Wells

Aquifer	Wells (listed in order of occurrence along the groundwater flow path)					
UBZ – 2	TW-37 Source Area	TW-22 Source Area	TW-24 Source Area	TW-39	TW-20	TW-54
UBZ – 4	TW-16 Source Area	TW-17 Source Area	TW-50	TW-40 Source Area	TW-26	PW-03

5.5 Cadmium

Speciation modeling results indicate that the precipitation of otavite (CdCO_3) is a possible control on the transport of cadmium.

- **UBZ-2** – Otavite saturation indices for the UBZ-2 wells are shown in Figure 11. The otavite saturation indices for the source area wells (i.e., TW-37, TW-22, and TW-24) are often between -0.5 and 0.5, indicating equilibrium conditions. These results suggest that close to the source, otavite is likely precipitating thereby retarding the advancement of the cadmium plume. The downgradient wells are undersaturated with respect to otavite.
- **UBZ-4** – Otavite saturation indices for the UBZ-4 wells are shown in Figure 12. The otavite saturation indices for the source area wells (i.e., TW-16 and TW-40) are equal to or greater than 0.5, indicating equilibrium or supersaturated conditions. These results suggest that close to the source, otavite is likely precipitating thereby retarding the advancement of the cadmium plume. The downgradient wells are undersaturated with respect to otavite.

Both chloride and cadmium concentrations are currently increasing in well TW-37. Recent increases in cadmium concentrations at this well may be attributed to dissolution of previously precipitated otavite, as opposed to release from the former Underflow Solids Ponds source. Appendix E of the second five year report (Golder, 2008) discussed the potential for increases in groundwater chloride concentrations to increase the solubility of otavite due to the formation of cadmium-chloride complexes. Figure 13 shows the solubility curve for otavite assuming two different chloride concentrations. The lower curve was modeled assuming the groundwater quality measured at TW-37 in June 1999 and a chloride concentration of 25 mg/L. The upper curve was generated using the May 2009 groundwater quality for TW-37 and a chloride concentration of 508 mg/L. As the concentration of chloride increases, the amount of cadmium complexed with chloride increases and thus the concentration of cadmium in groundwater increases.

5.6 Manganese

Manganese mobility in groundwater is reduced under oxidizing conditions where manganese concentrations can be reduced by the precipitation of manganese oxide, oxyhydroxides, and carbonates. Manganese concentrations are currently stable in most UBZ-2 and UBZ-4 wells. Rhodochrosite (MnCO_3)

saturation indices over time for the UBZ-2 and UBZ-4 wells are shown in Figures 14 and 15. Manganese concentrations in TW-22 and TW-37 are currently stable at approximately 0.7 to 0.8 mg/L and are likely controlled by the precipitation of rhodochrosite. The speciation model results indicate that the groundwater at these wells is near equilibrium with respect to rhodochrosite. Within the UBZ-4, rhodochrosite is identified as a likely control in areas where manganese concentrations are highest (i.e., TW-17, TW-50, and TW-26).

5.7 Fluoride

Fluoride mobility in groundwater may be reduced by the precipitation of fluorite (CaF_2). Fluoride concentrations in the wells modeled in UBZ-2 are steady or decreasing (TW-37) with the exception of TW-39 which demonstrates an increasing fluoride concentration trend. Fluorite saturation indices for the UBZ-2 wells are shown in Figure 16. Fluorite is supersaturated in TW-37, the most upgradient source well. In the two remaining source wells (TW-22 and TW-24), speciation modeling results indicate equilibrium with respect to fluorite. The downgradient wells (TW-39, TW-20 and TW-54) also indicate equilibrium conditions with respect to fluorite. These results suggest that precipitation of fluorite is a control on fluoride mobility. Supersaturation at the most upgradient well may be indicative of slower reaction kinetics resulting in some transport prior to precipitation.

Fluorite saturation indices for the UBZ-4 wells are shown in Figure 17. In UBZ-4, fluoride concentrations are currently decreasing in the source area wells, while the other wells show steady levels of fluoride. Precipitation of fluorite in the source areas (TW-16 and TW-40) is a likely control on fluoride concentrations.

5.8 Selenium

Selenium is mobile under the groundwater conditions at the Monsanto site and selenium appears to be transported conservatively. The chemical hydrographs for the UBZ-2 wells show the arrival of concentration peaks in downgradient wells at the estimated rate of groundwater flow (Figures 4b and 7b).

5.9 Nitrate

Nitrate is transported conservatively in groundwater. The principal attenuation mechanism is denitrification under reducing conditions. This condition is not met at the Monsanto site and nitrate is transported in groundwater with no retardation.

5.10 Summary

Table 11 presents a summary of the likely attenuation mechanisms present at the Monsanto site for the COCs.

TABLE 11
Main Attenuation Mechanisms At The Monsanto Site

Parameter	Attenuation Mechanism		
	Mineral Precipitation	Sorption	Dispersion
Cadmium	Otavite (CdCO ₃)	Possibly manganese oxyhydroxides and calcite.	Yes
Fluoride	Fluorite (CaF ₂)		Yes
Manganese	Rhodochrosite (MnCO ₃)	None	Yes
Nitrate	None	None	Yes
Selenium	None	None	Yes

6.0 CONCLUSION

The objective of the current evaluation was to review the Monsanto groundwater quality data to determine the effectiveness of natural attenuation for cadmium, manganese, fluoride, selenium, and nitrate.

The evaluation indicates that natural attenuation due to secondary mineral precipitation, dispersion and possible adsorption is occurring for cadmium, fluoride, and manganese. Otavite, fluorite, and rhodochrosite, respectively, have been identified as the most likely mineral phase controls for these constituents in the source areas. The only natural attenuation mechanism for nitrate and selenium is dispersion, and this has resulted in reduction of nitrate and selenium concentrations for wells located downgradient of the source area wells, especially for the UBZ-4. Greater dispersion within the UBZ-4 is likely attributed to greater lateral dispersion than within the UBZ-2 and the effects of pumping.

Application of magnesium chloride dust suppression chemicals may have resulted in increased chloride concentrations in some locations on the Plant site as a result of runoff and potential infiltration. The possible effects of dust suppressant application are most evident at TW-37. At this well, the increased chloride concentrations in groundwater have likely resulted in dissolution and re-mobilized previously precipitated cadmium carbonate (otavite) from the source areas.

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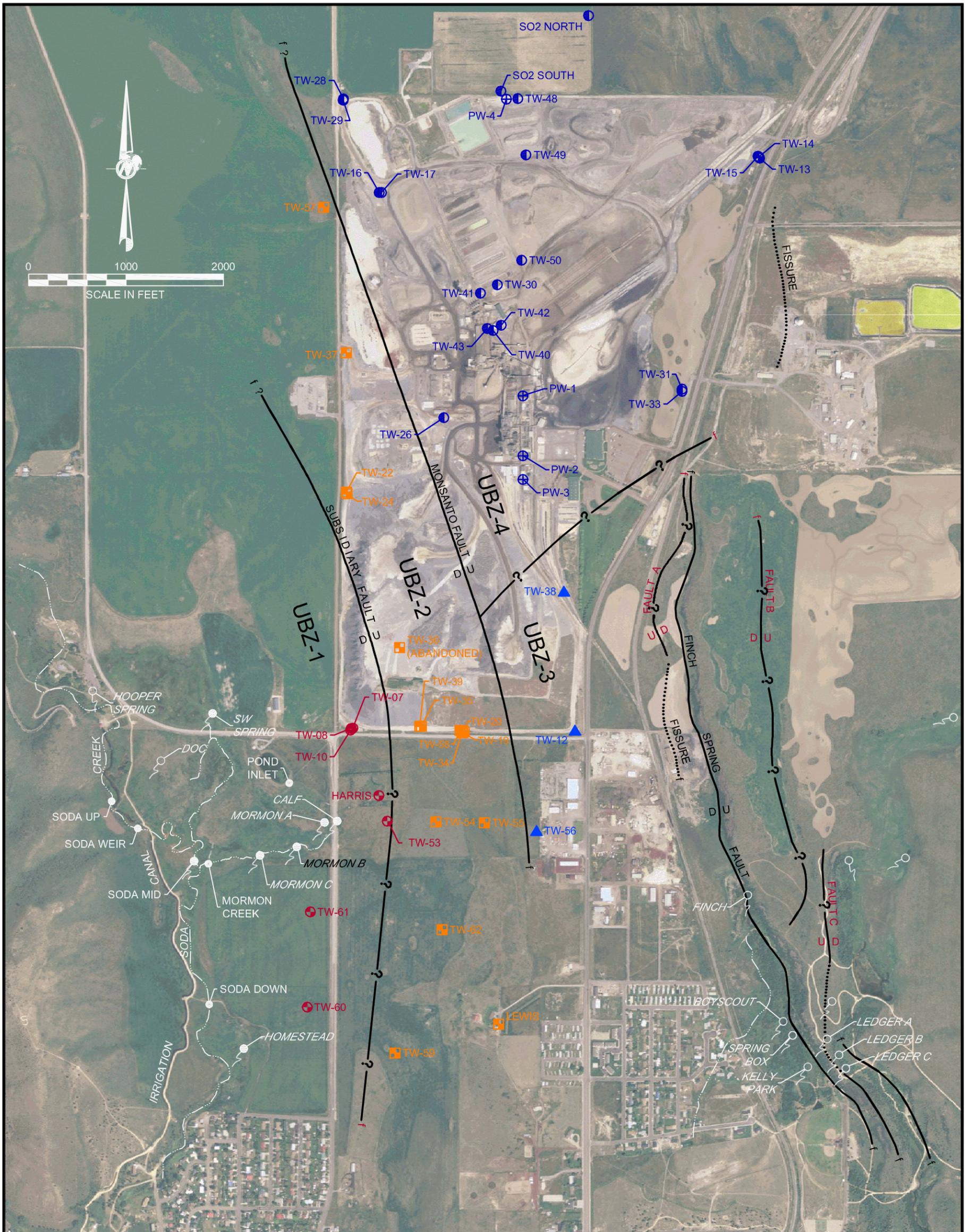
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FIGURES



LEGEND:

- f ——— f FAULT
- f ——— f FAULT (INFERRED)
- f - - - - f FISSURE
- UBZ-1 GROUNDWATER ZONE

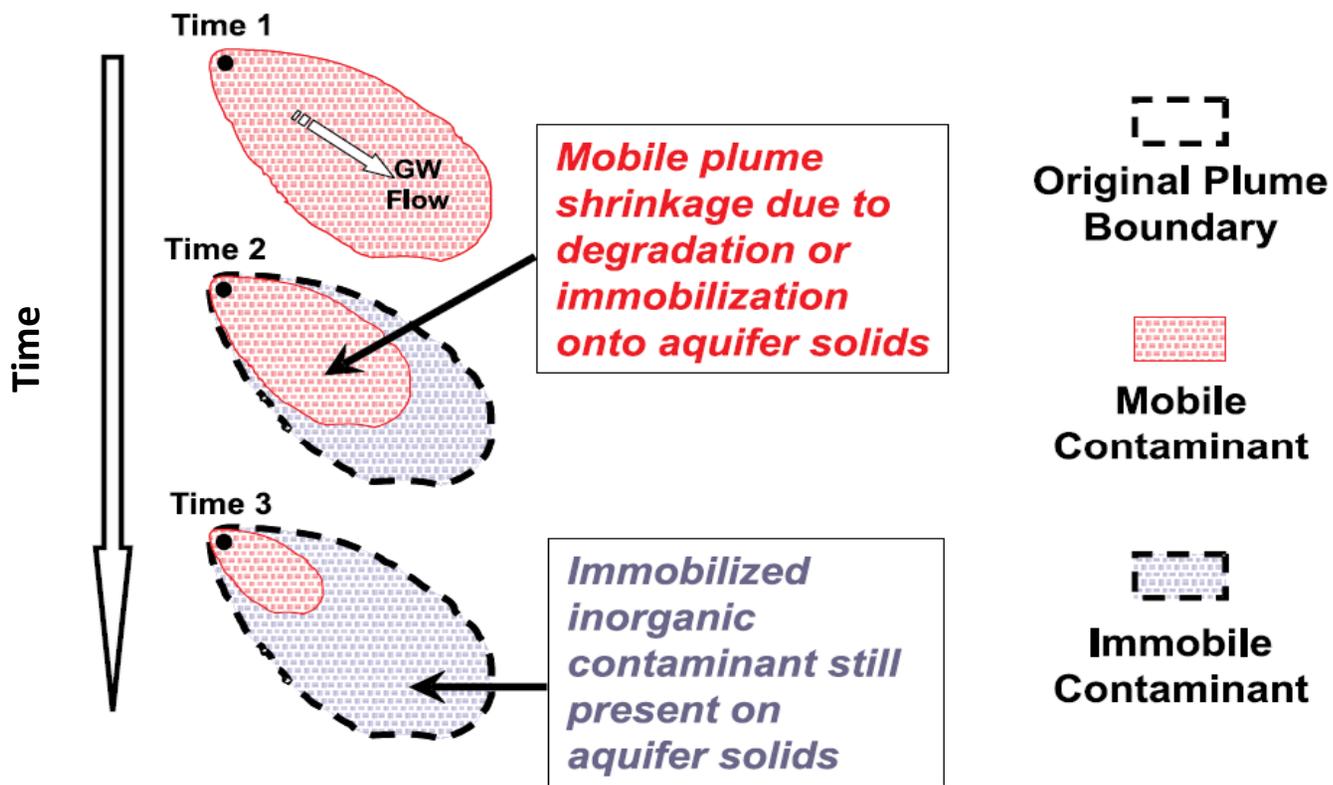
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- LEWIS MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
- ▲ TW-56 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
- TW-33 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
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- MORMON A SPRING LOCATION WITH NAME (WHERE KNOWN)
- MORMON B SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN)
- MORMON CREEK SURFACE WATER LOCATION WITH NAME

FIGURE 1

**LOCATION OF SPRINGS AND WELLS
IN THE UPPER BASALT ZONE**
EVALUATION OF NATURAL ATTENUATION CONTROLS

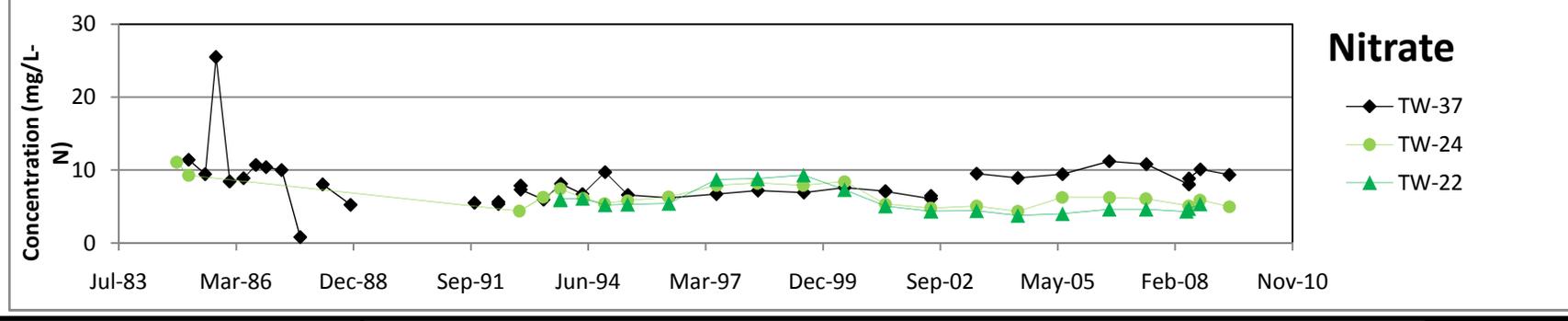
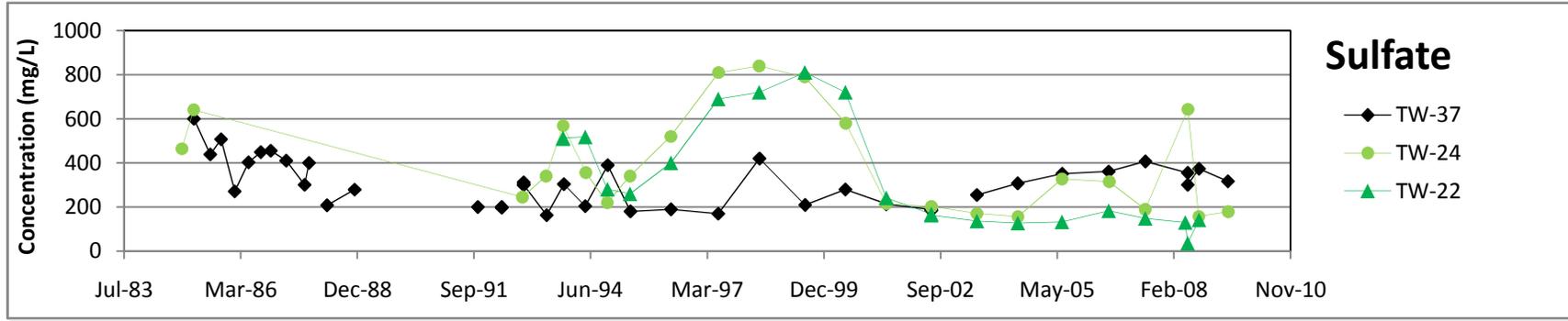
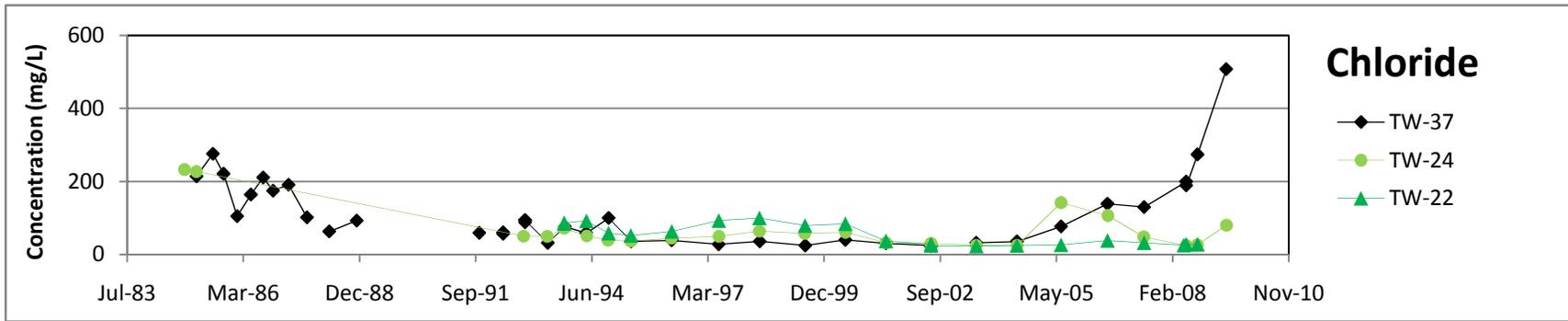
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Reproduced from EPA, 2007

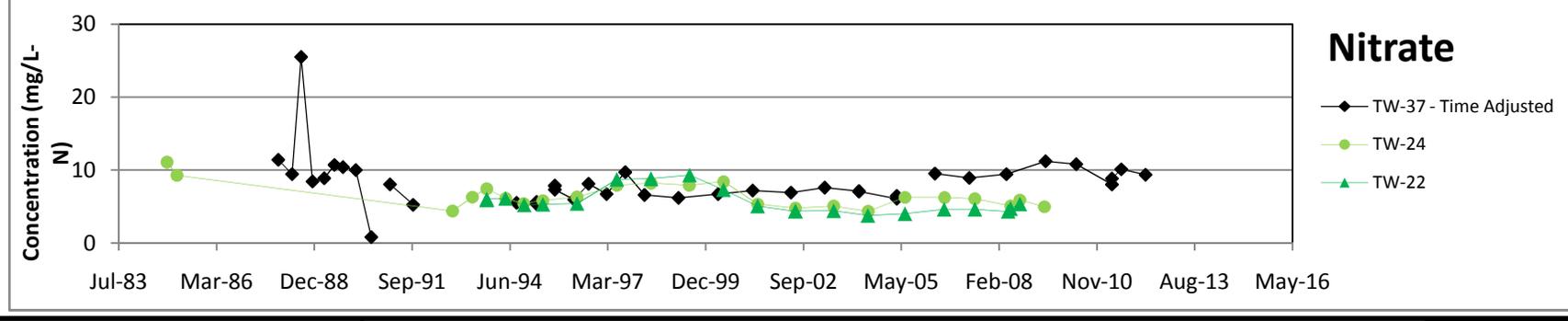
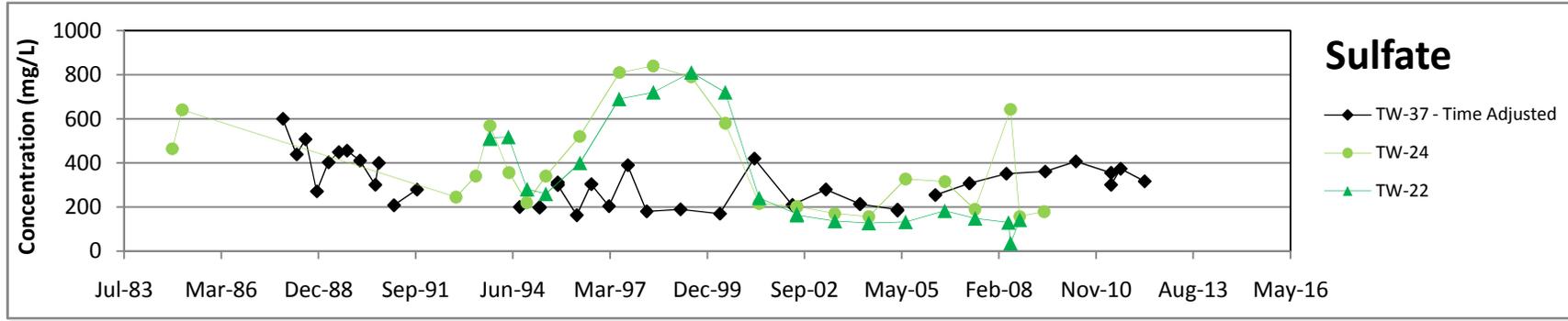
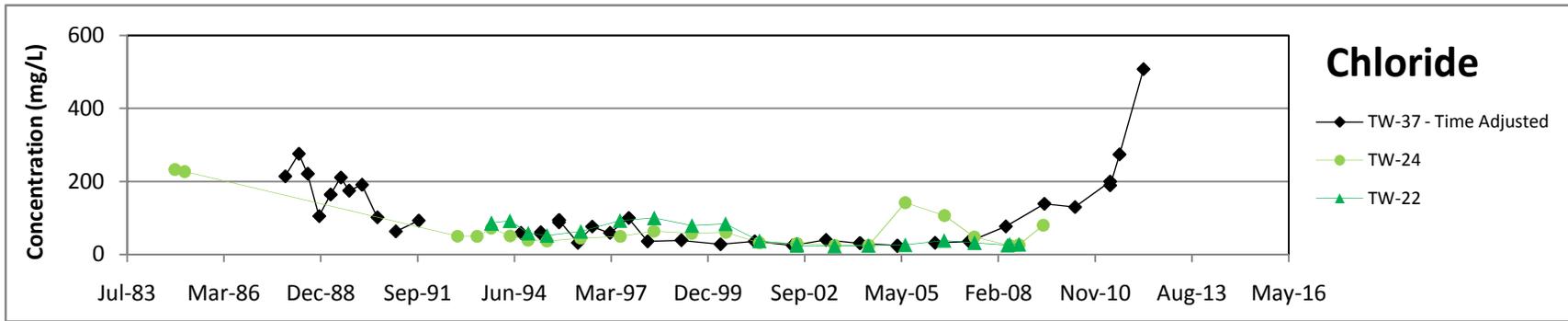


Title		Evolution of inorganic contaminant plume (EPA, 2007)		Drawn	FV	
Project Name		Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605	Checked	CR
Client Name		Monsanto	Date	November 2009	Reviewed	DB
					FIGURE	2



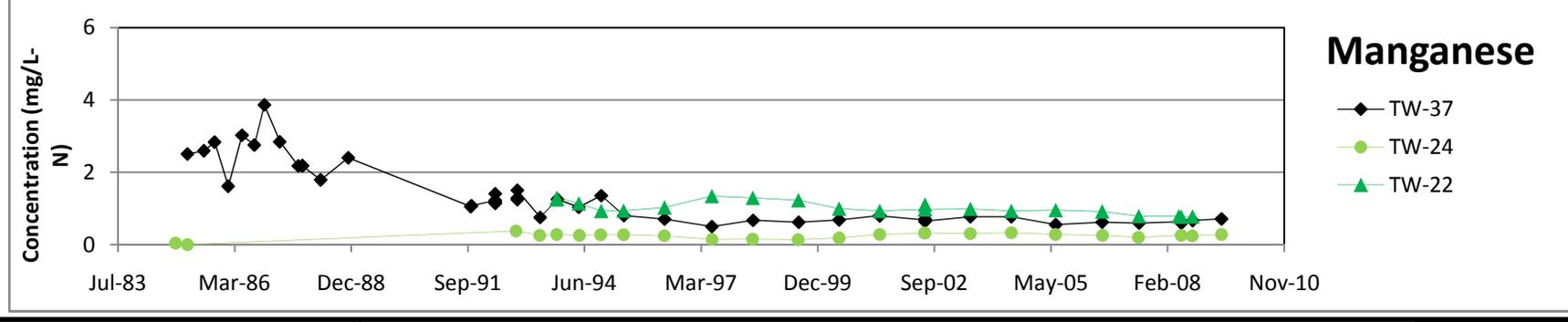
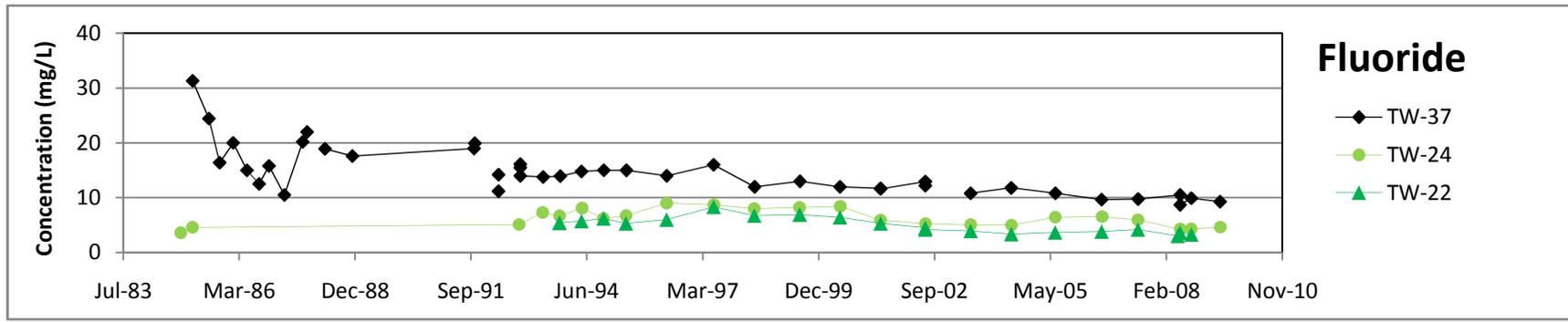
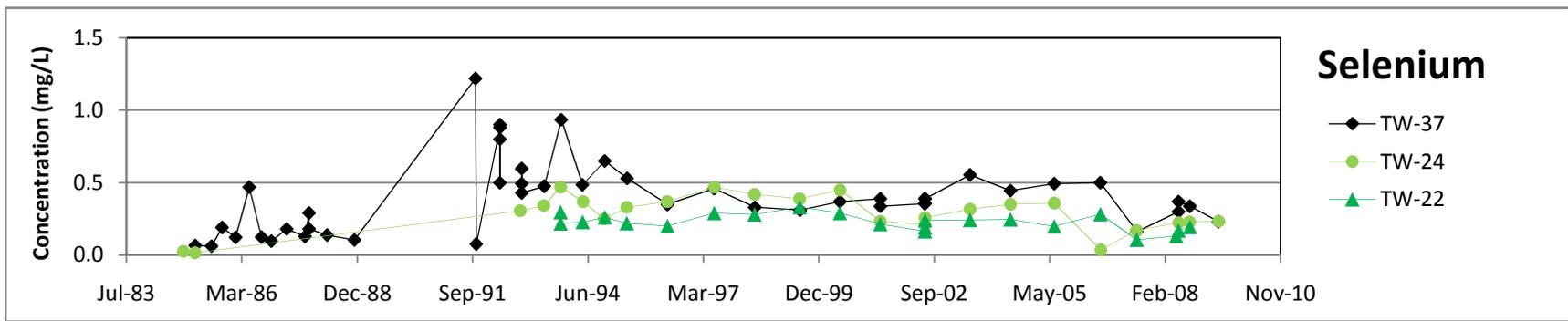
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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 3a	

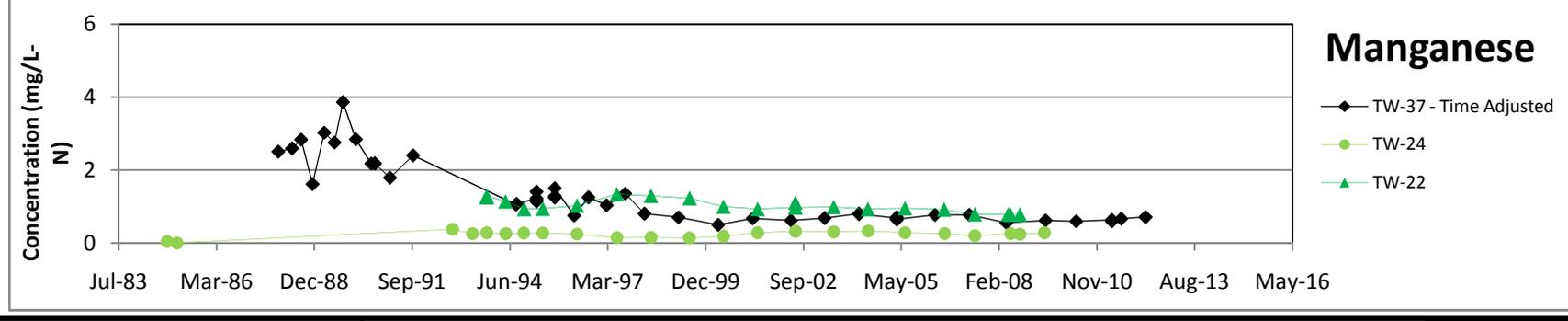
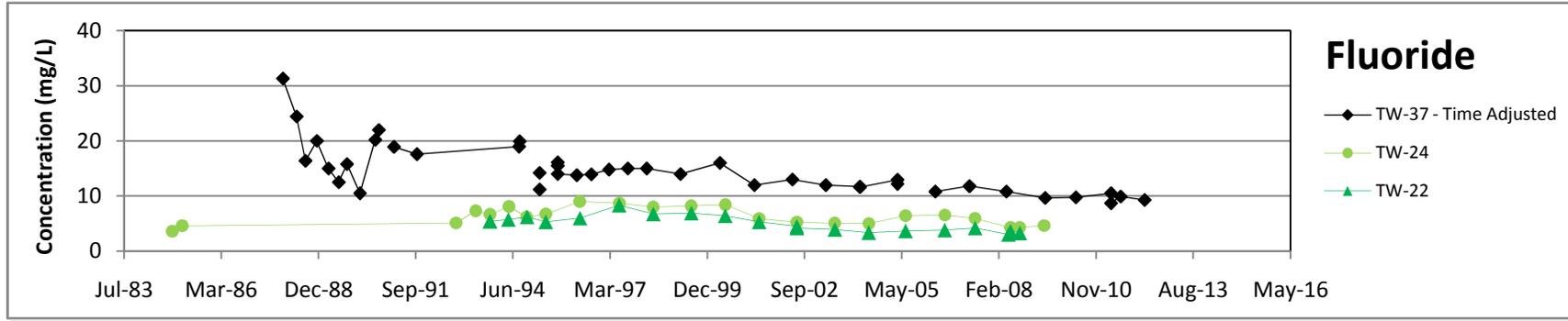
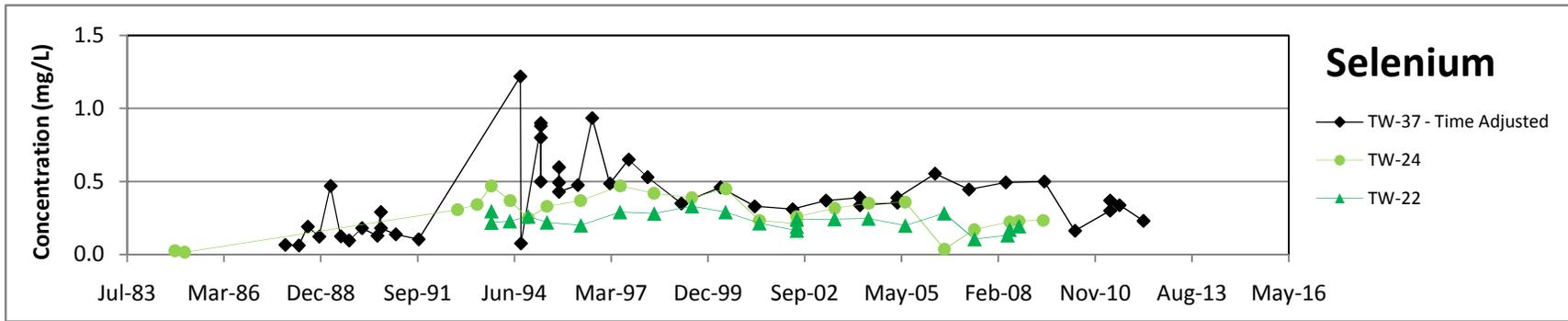


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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 3b	

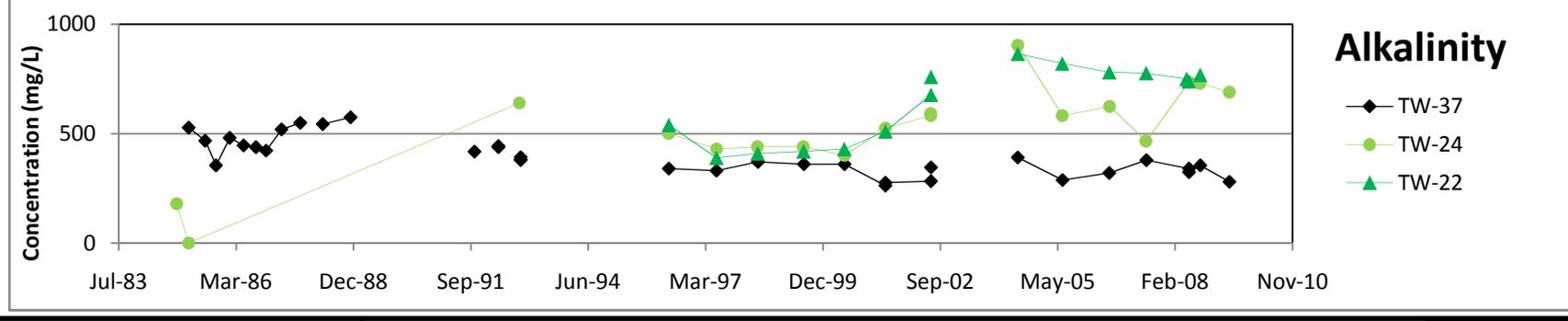
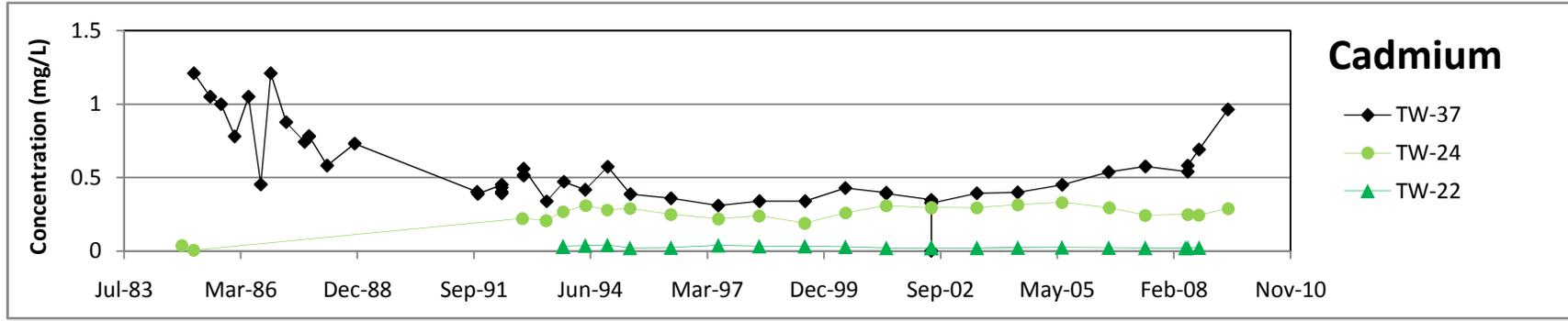
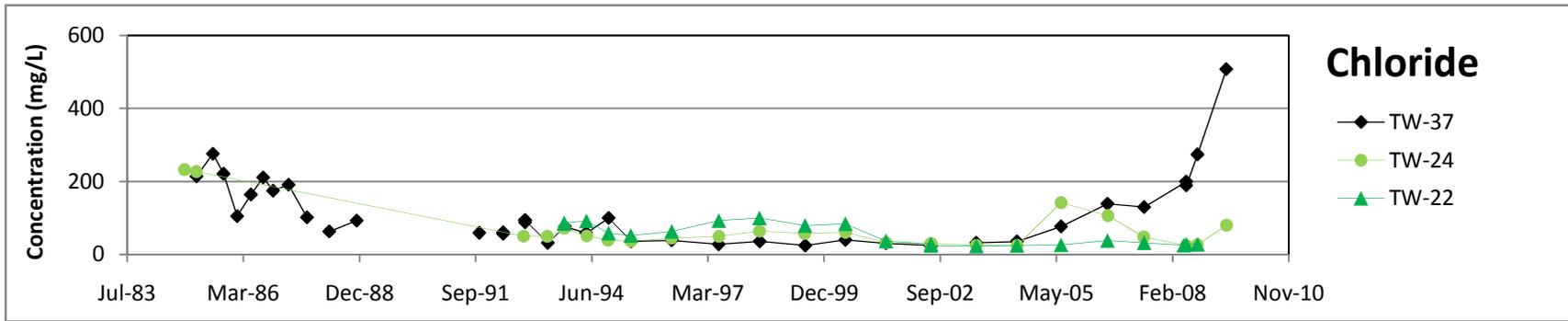


	Title UBZ-2 Source Wells - Se, F and Mn		Drawn CR
	Project Name Monsanto Soda Springs - Natural Attenuation		Checked FV
	Project No. 913-1101.605		Reviewed DB
	Client Name Monsanto		Date November 2009
			FIGURE 4a



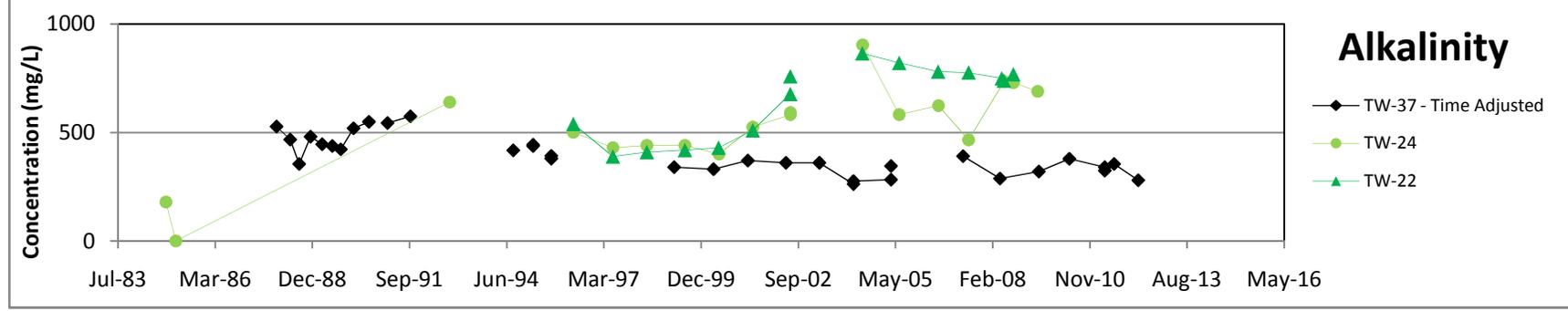
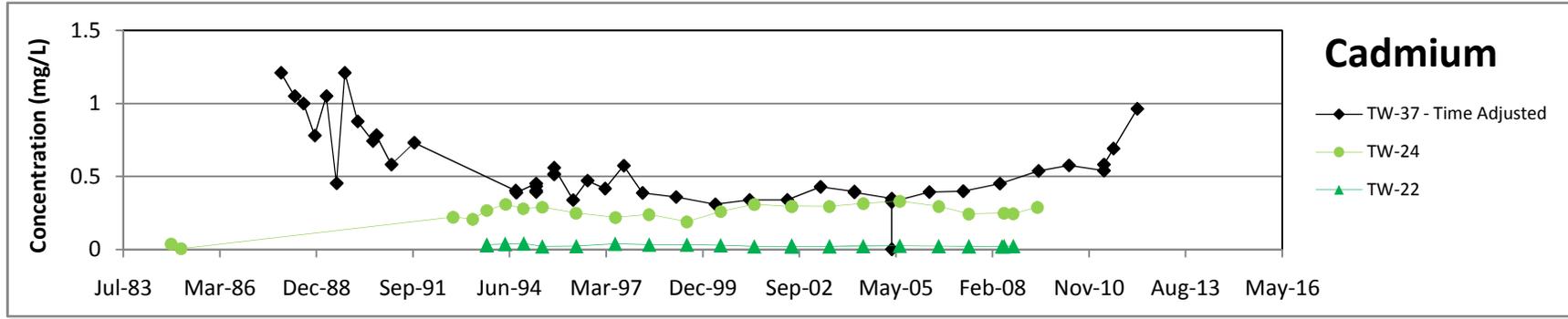
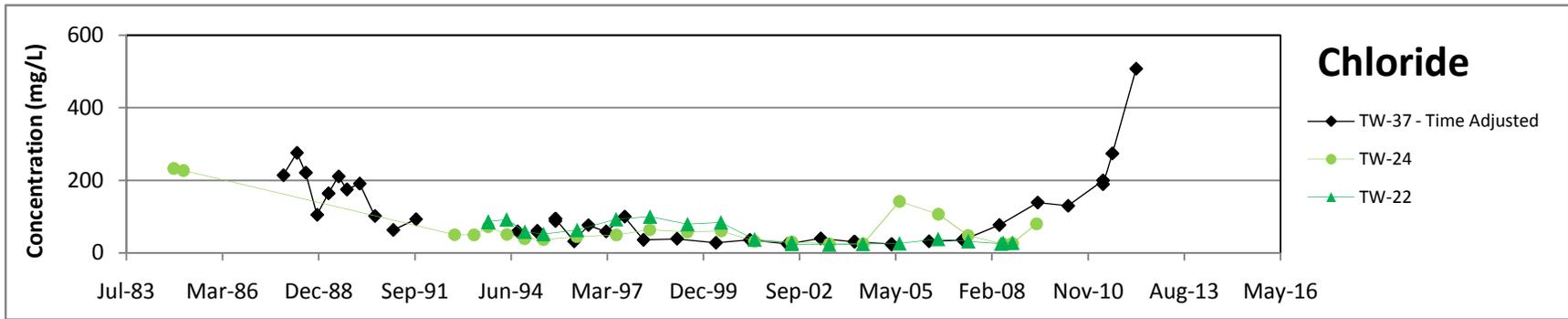
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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 4b	



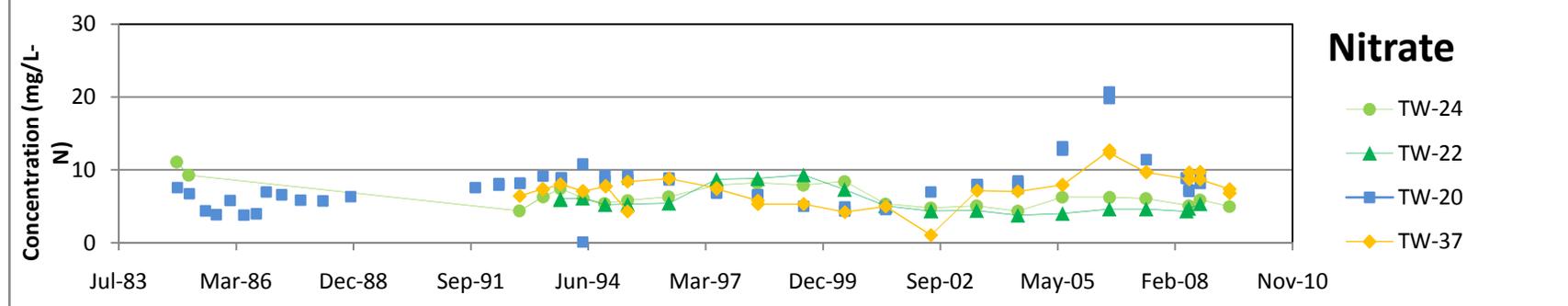
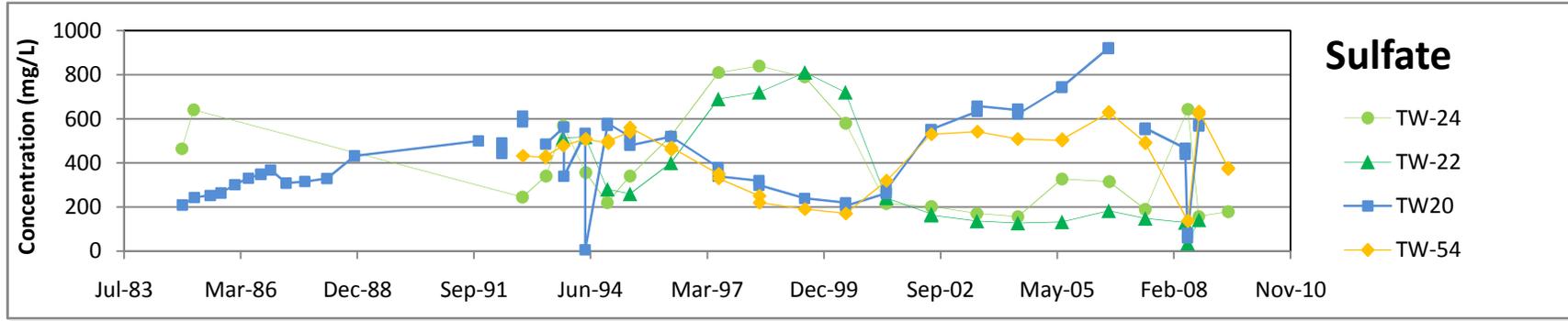
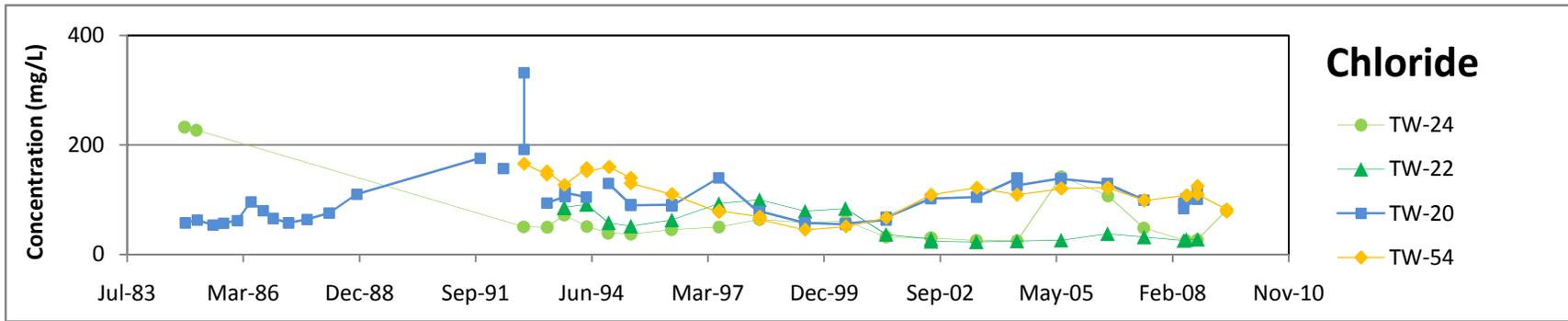
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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 5a	



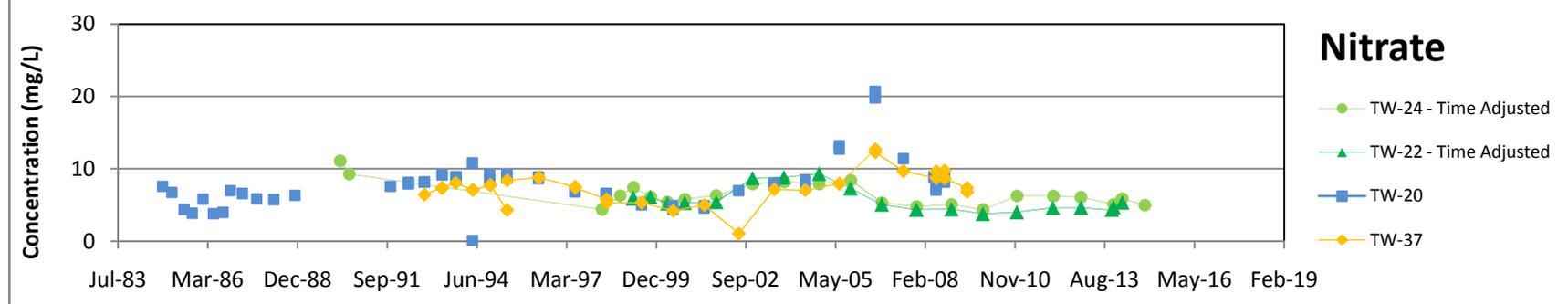
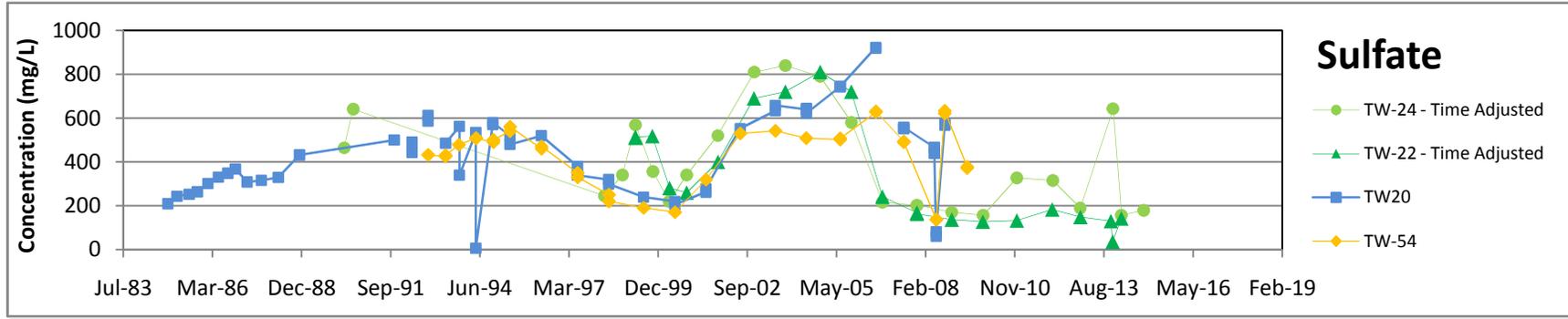
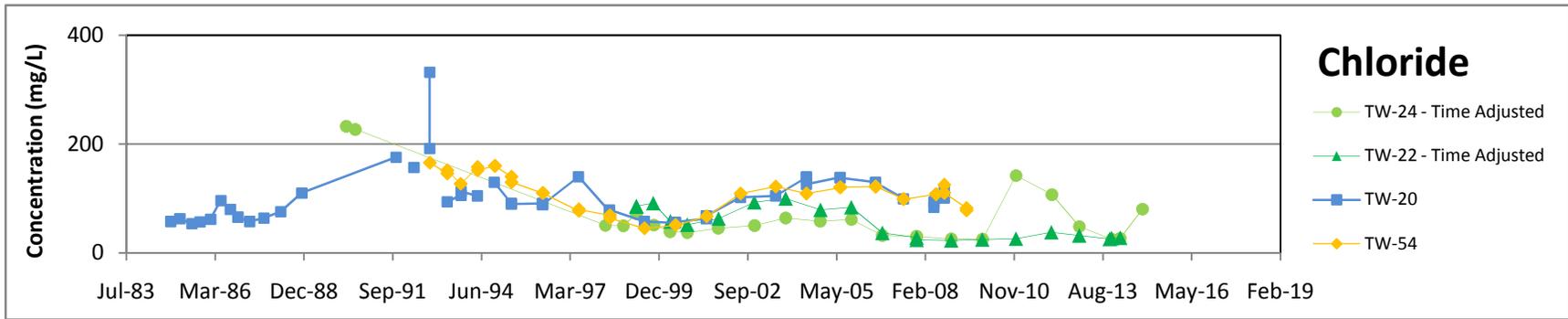
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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 5b	



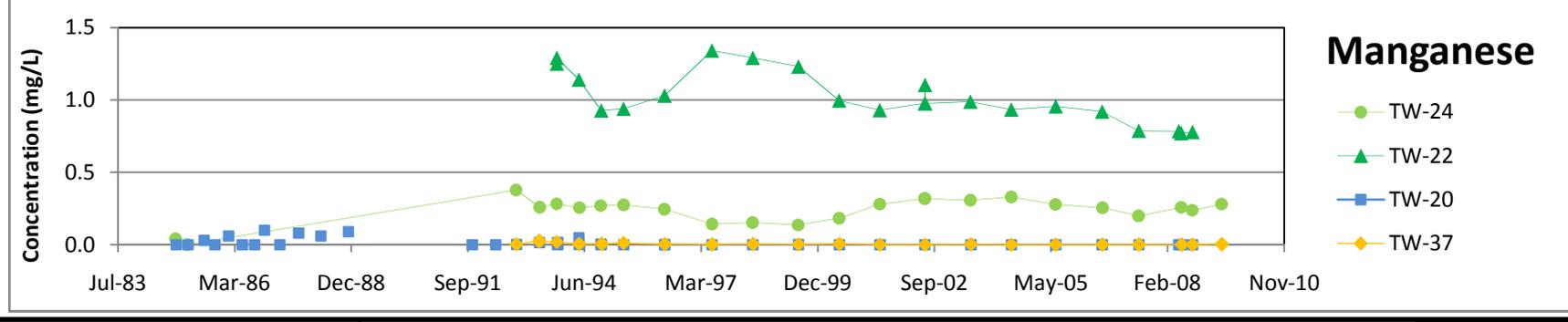
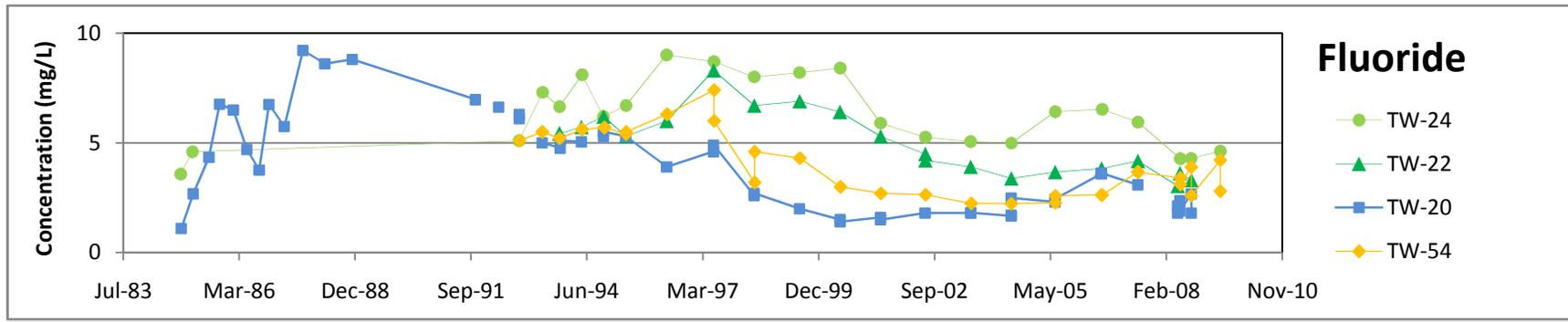
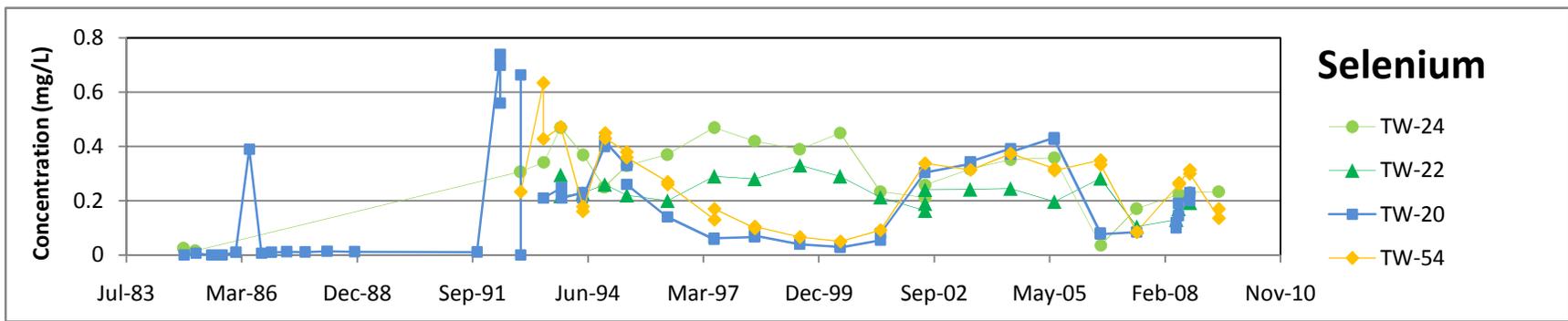
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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 6a	

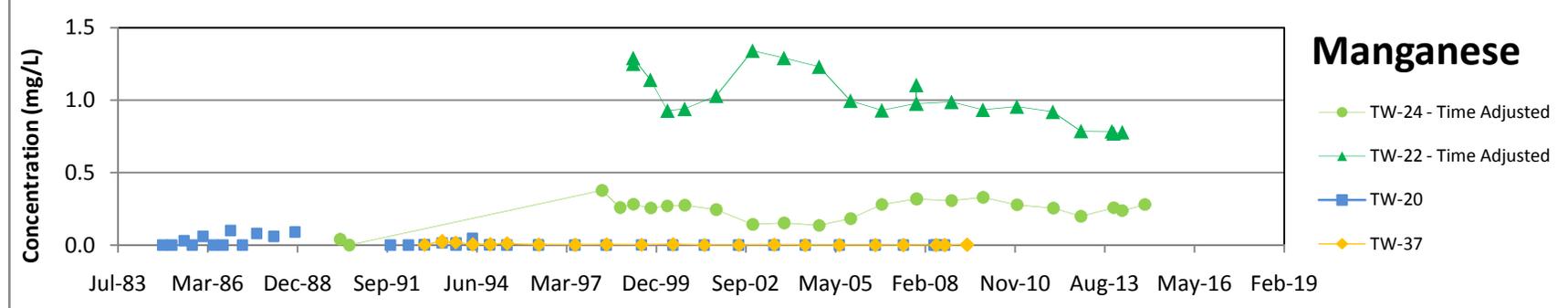
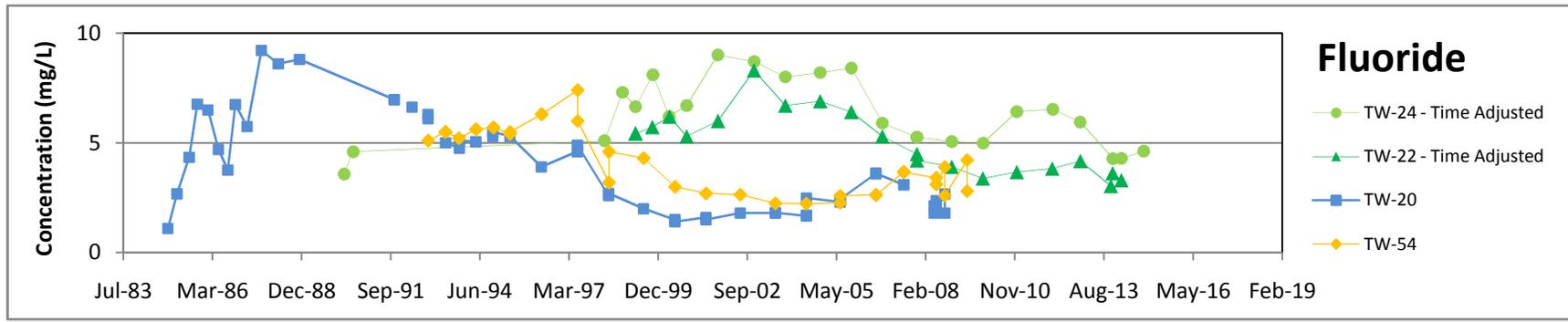
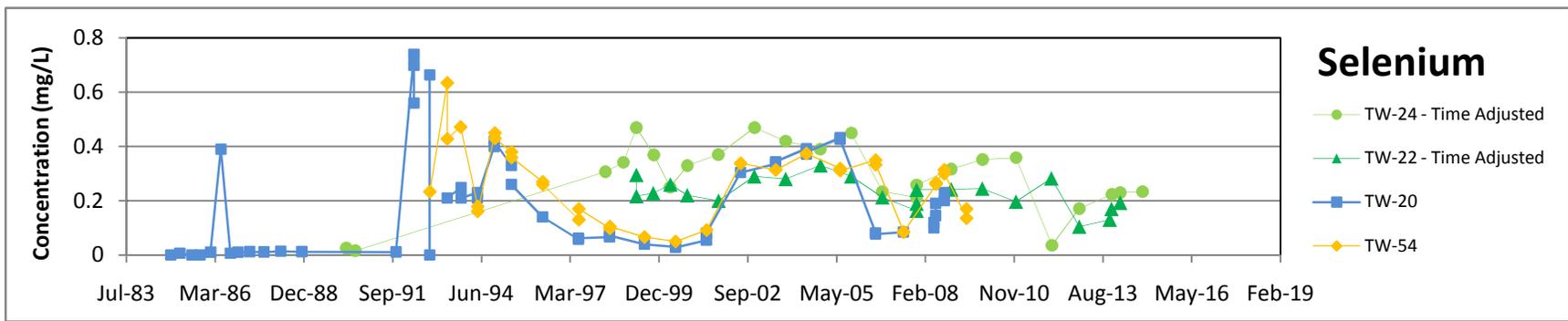


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Client Name	Monsanto	Date	November 2009

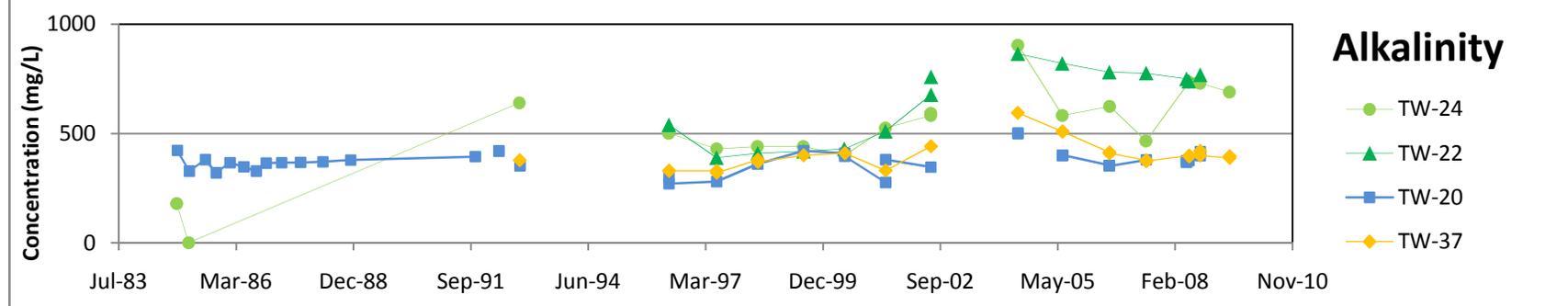
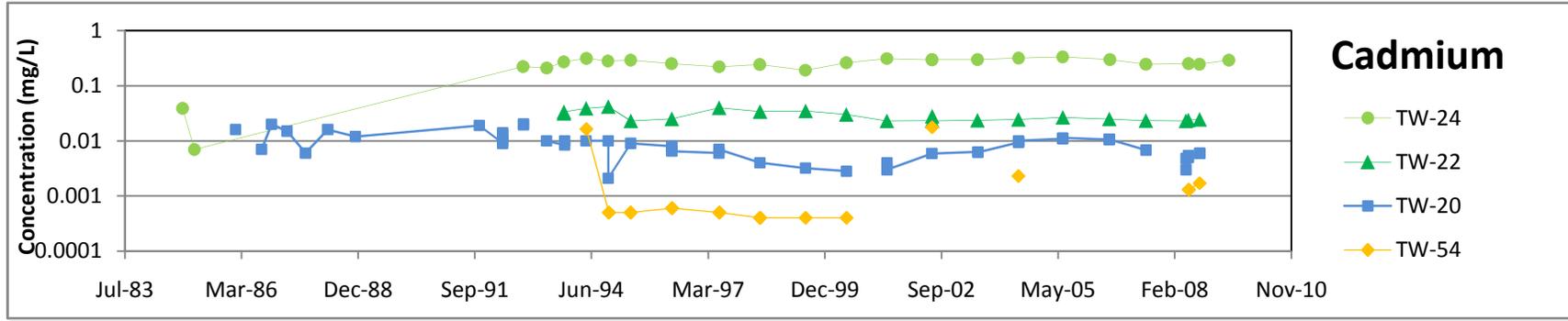
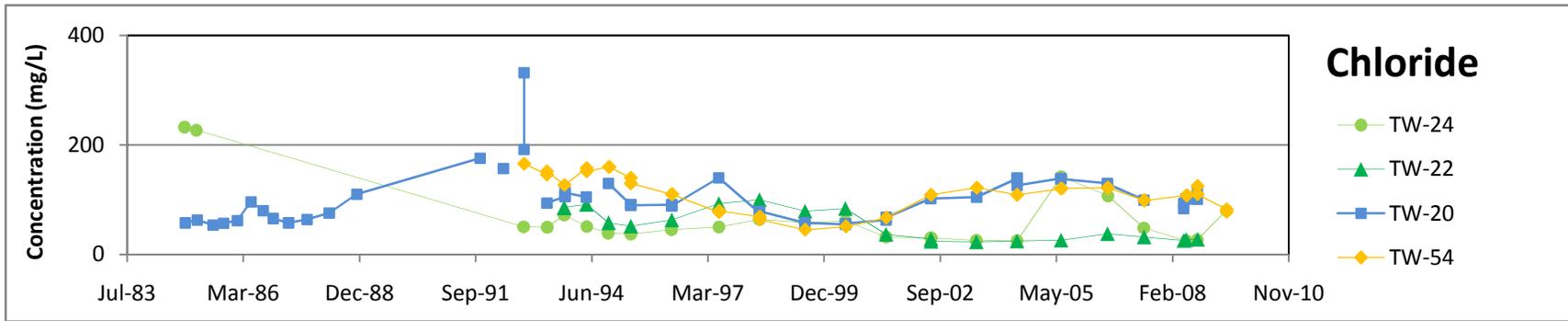
Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 6b	



Title UBZ-2 Wells - Se, F and Mn		Drawn CR
Project Name Monsanto Soda Springs - Natural Attenuation		Checked FV
Project No. 913-1101.605		Reviewed DB
Client Name Monsanto	Date November 2009	FIGURE 7a

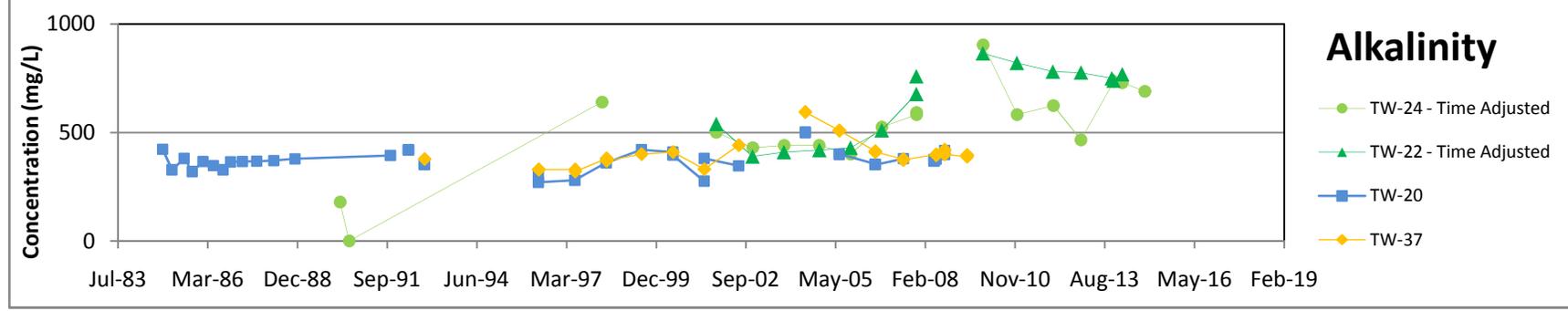
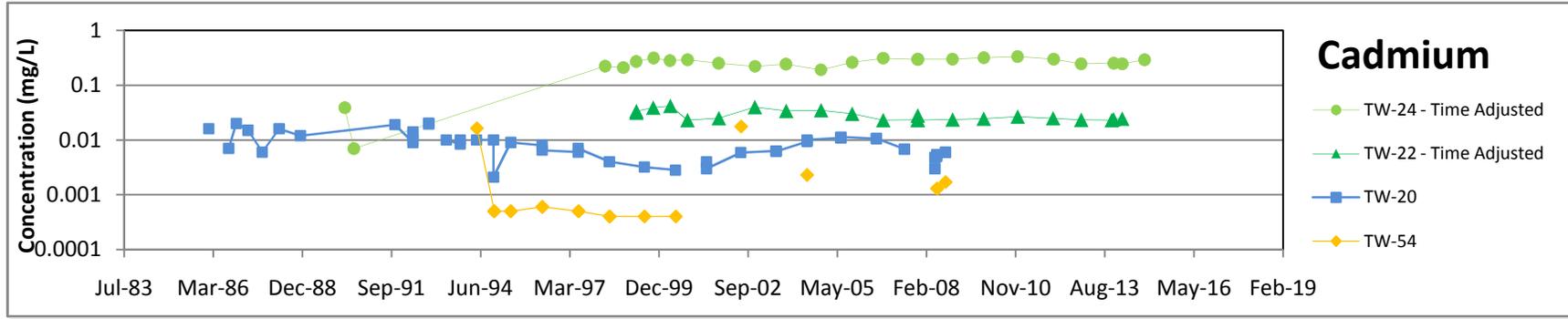
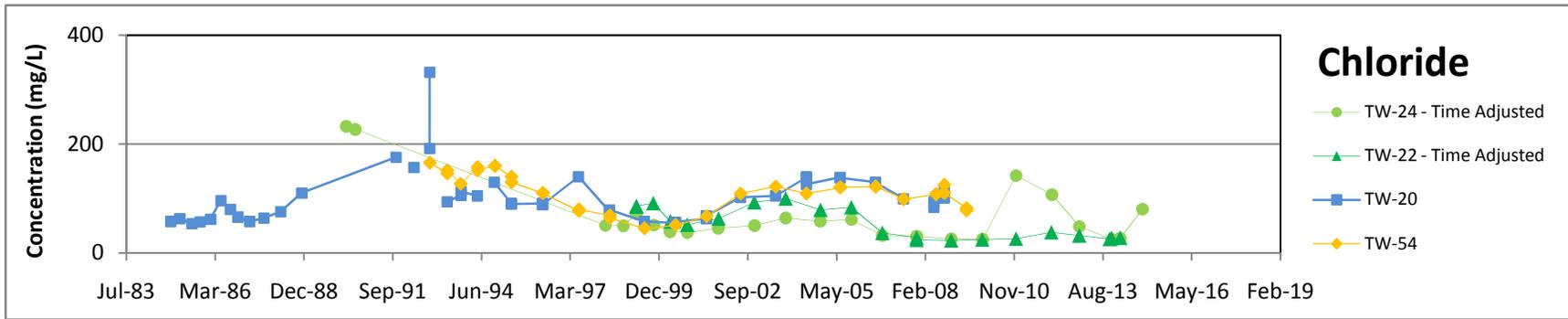


	Title UBZ-2 Wells - Se, F and Mn (Time Adjusted)		Drawn CR
	Project Name Monsanto Soda Springs - Natural Attenuation		Checked FV
	Project No. 913-1101.605		Reviewed DB
	Client Name Monsanto		Date November 2009
			FIGURE 7b



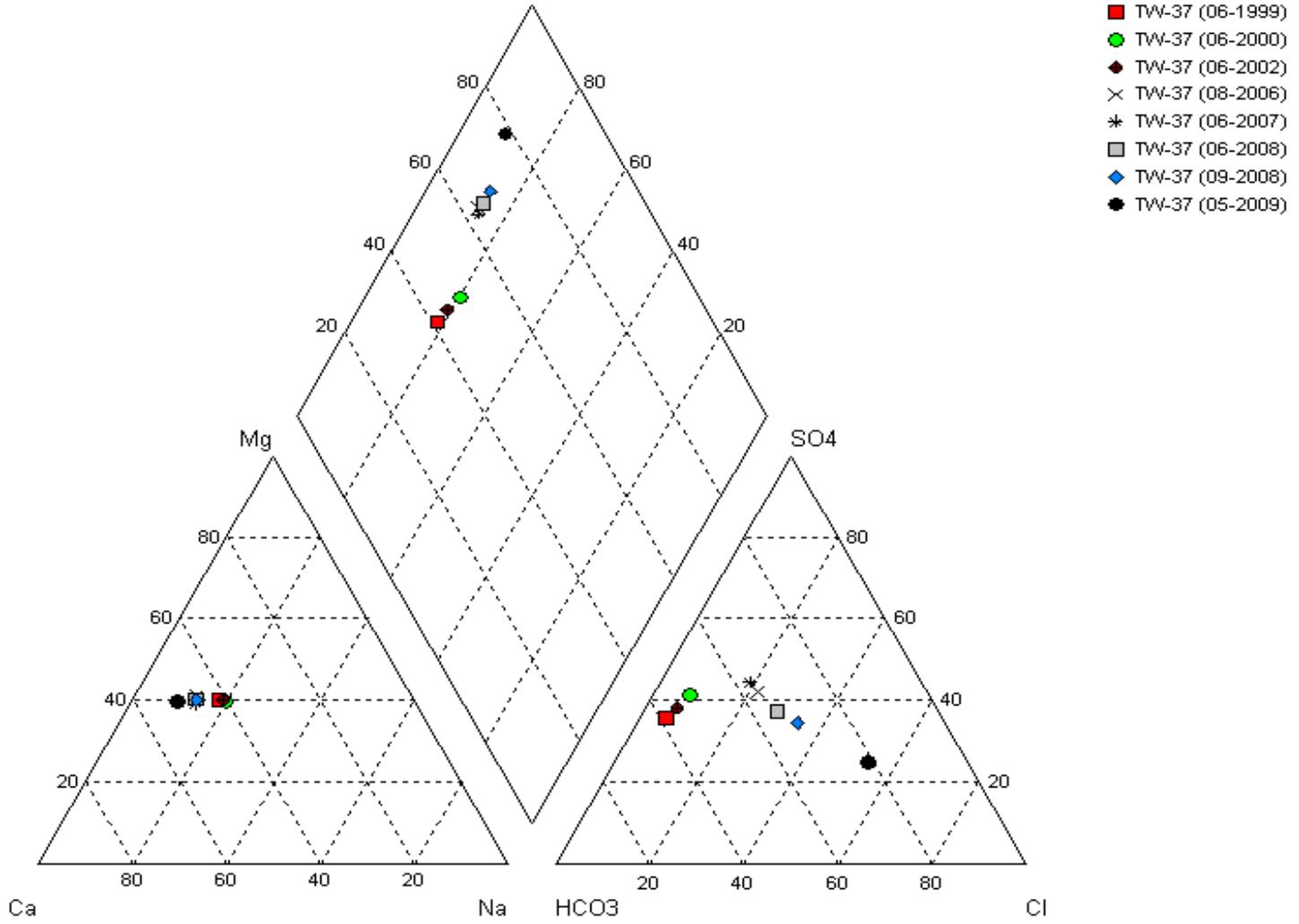
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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 8a	

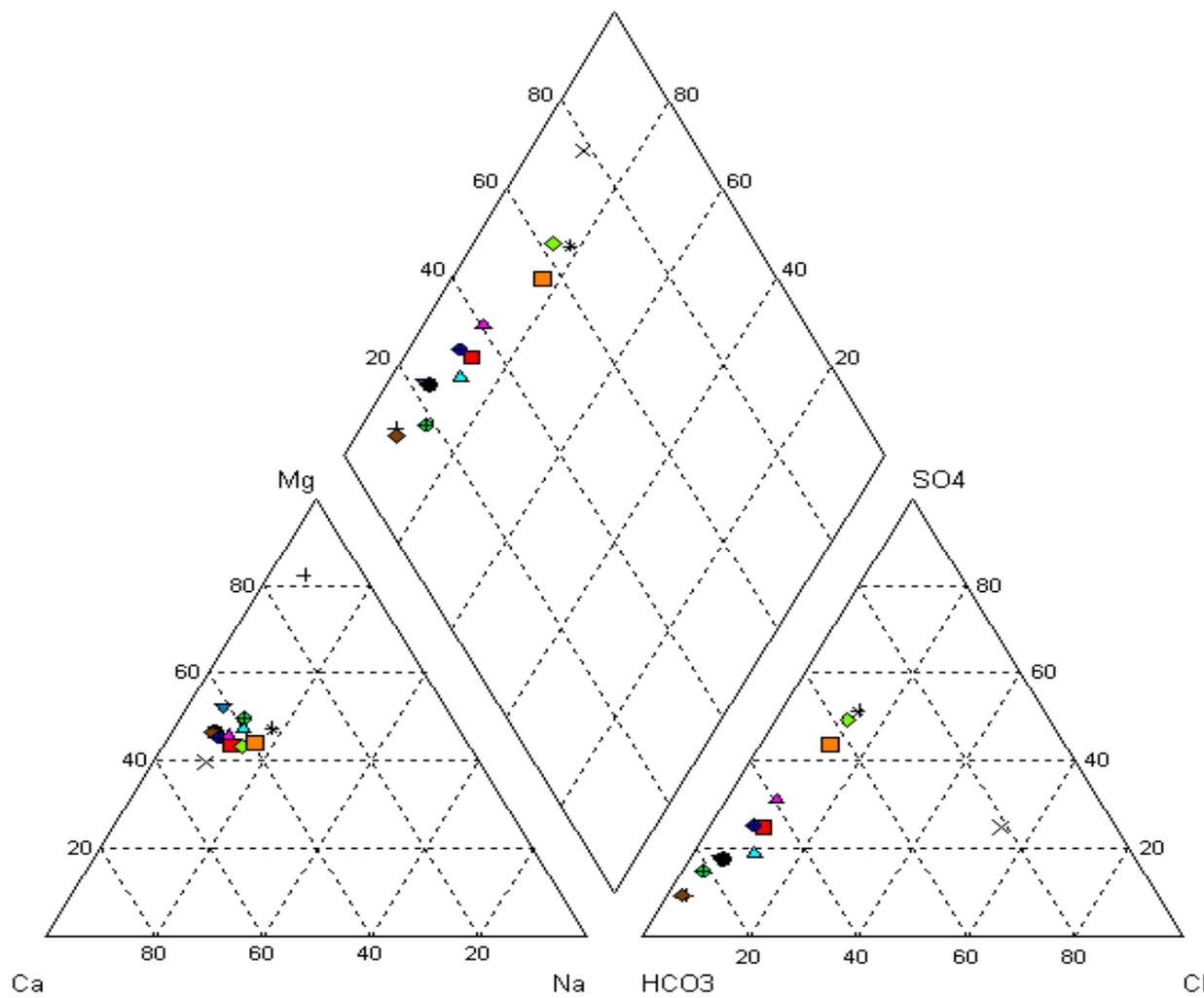


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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	CR
Checked	FV
Reviewed	DB
FIGURE 8b	



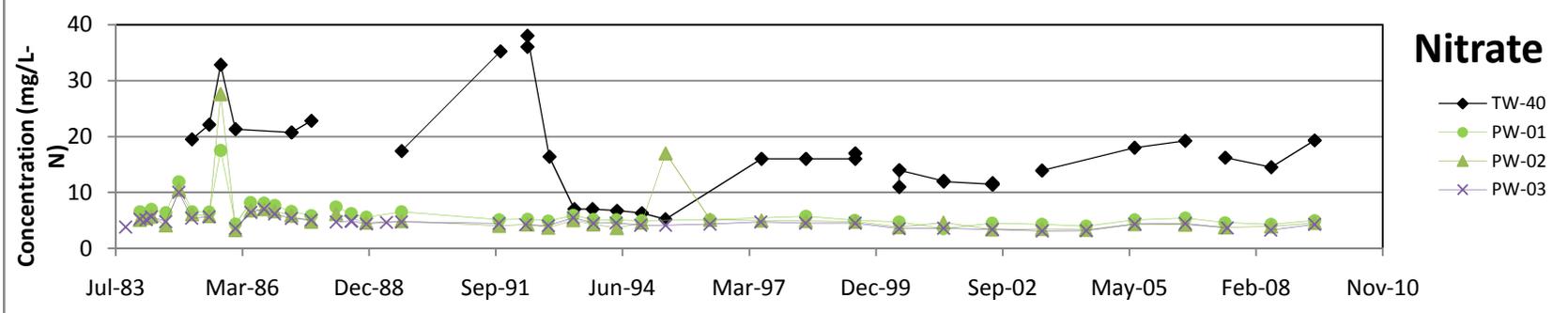
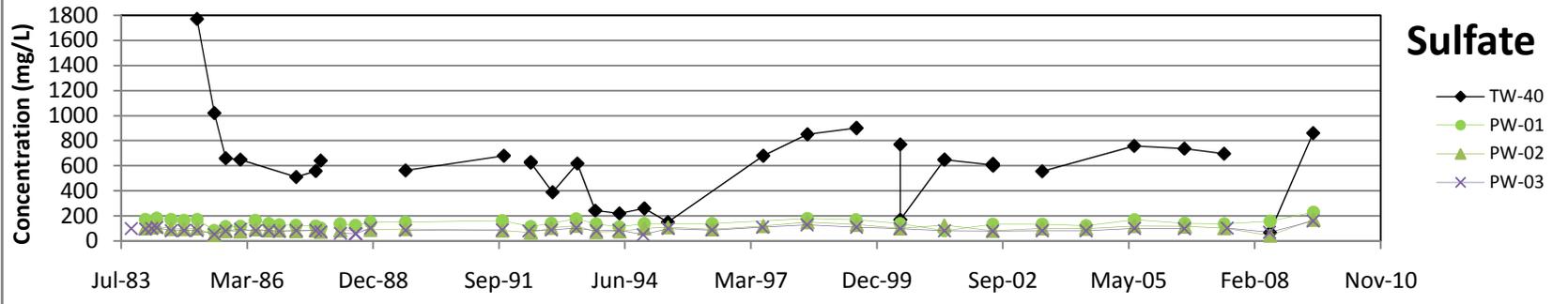
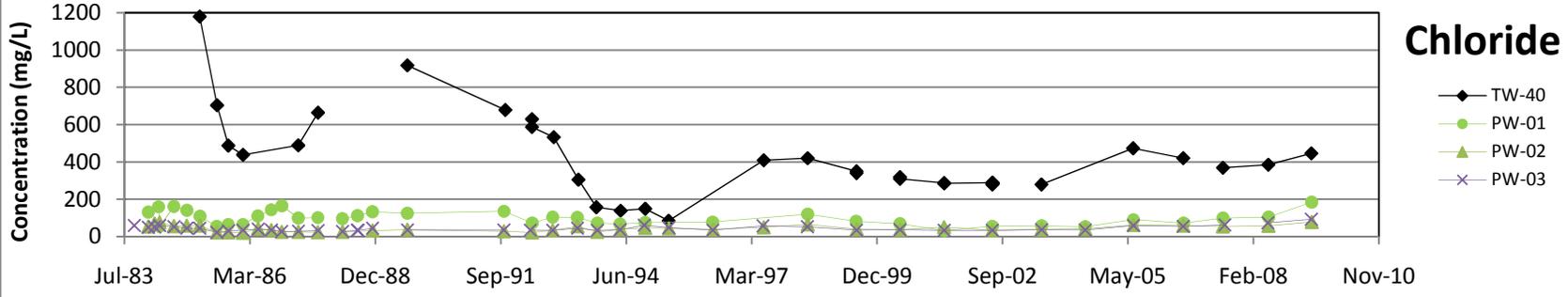
Title Piper plot - TW-37 (1999 - 2009)		Drawn	FV
Project Name Monsanto Soda Springs - Natural Attenuation		Checked	CR
Project No. 913-1101.605		Reviewed	DB
Client Name Monsanto	Date November 2009	FIGURE 9a	



- Lewis
- ◆ TW-20
- ◆ TW-22
- ▲ TW-24
- ▼ TW-34
- + TW-35
- × TW-37
- * TW-39
- TW-54
- TW-55
- ◆ TW-57
- ◆ TW-59
- ▲ TW-62

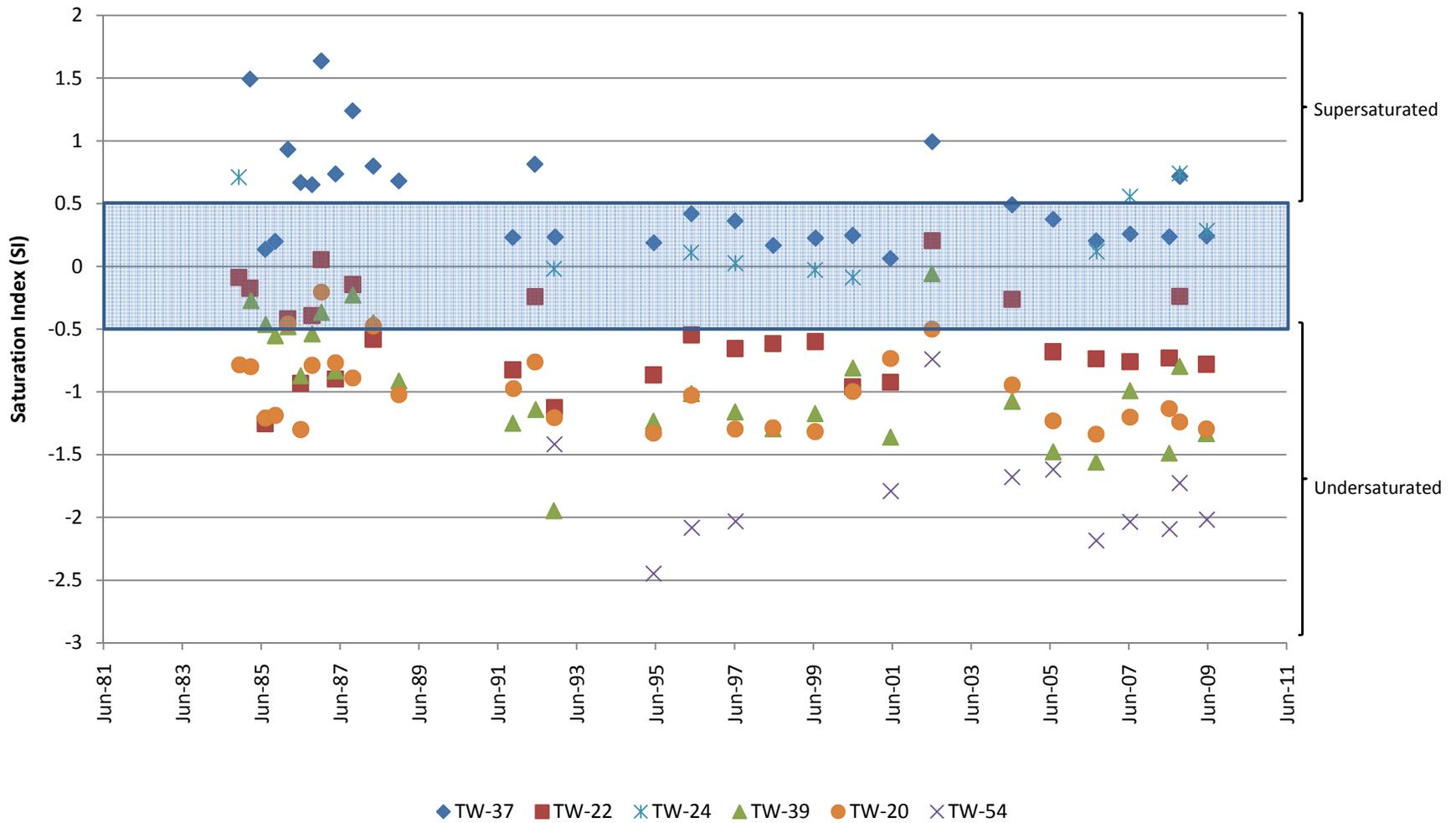


Title Piper plot UBZ-2 wells (2009)		Drawn FV
Project Name Monsanto Soda Springs - Natural Attenuation	Project No. 913-1101.605	Checked CR
Client Name Monsanto	Date November 2009	Reviewed DB
		FIGURE 9b

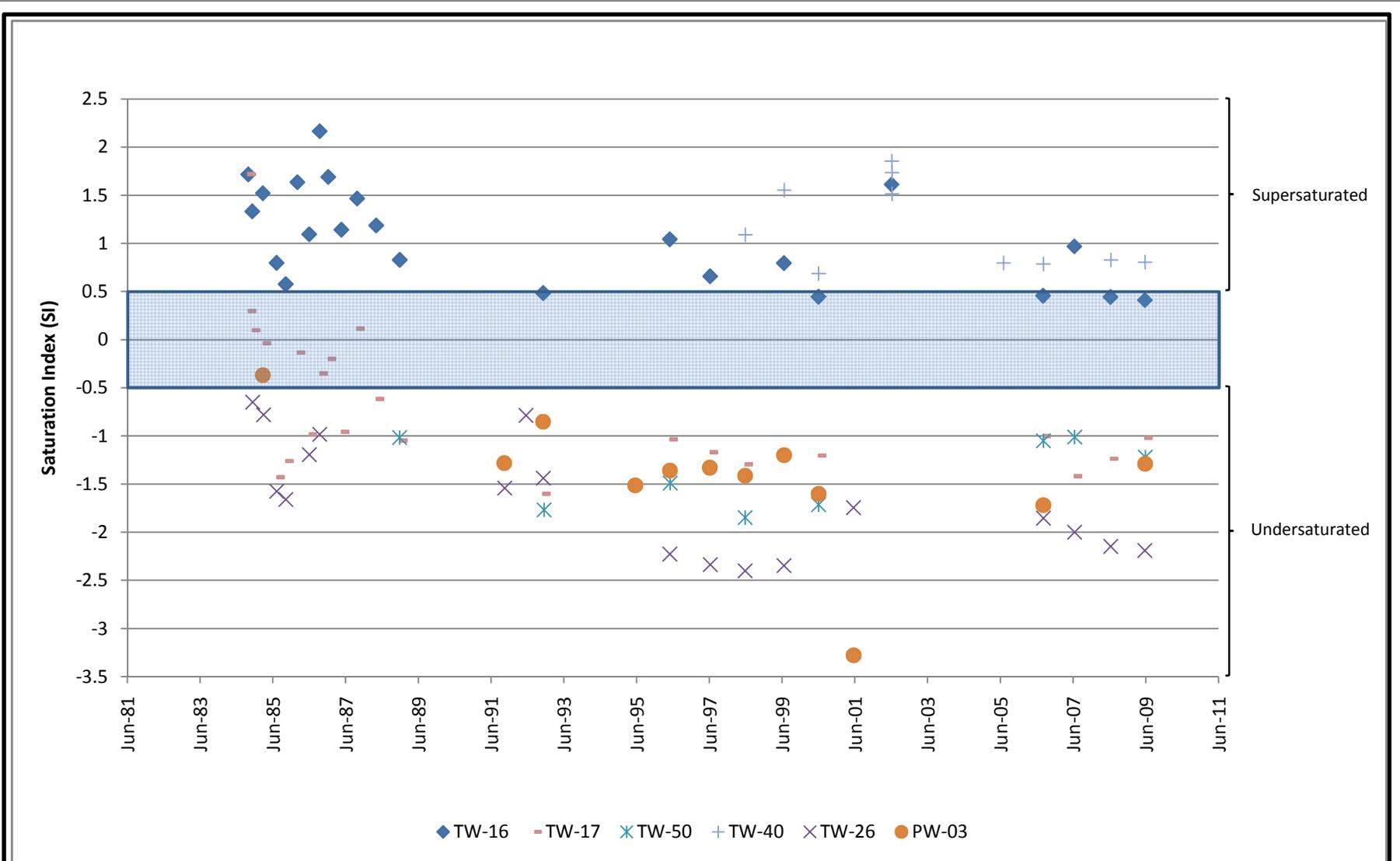


Title UBZ-4 Source Wells - Cl, SO4 and NO3		Drawn	FV
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Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

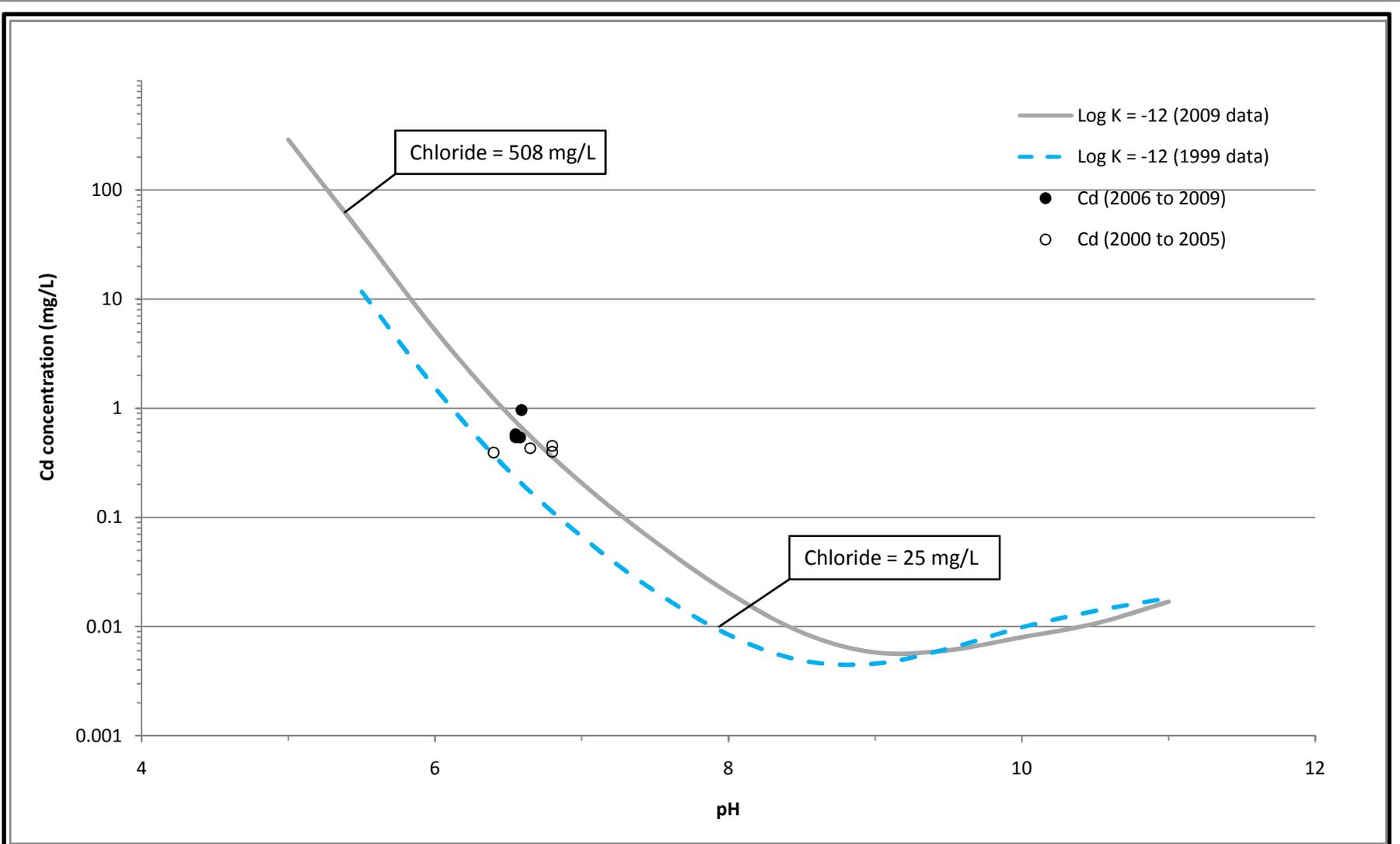
Reviewed	DB
FIGURE	10



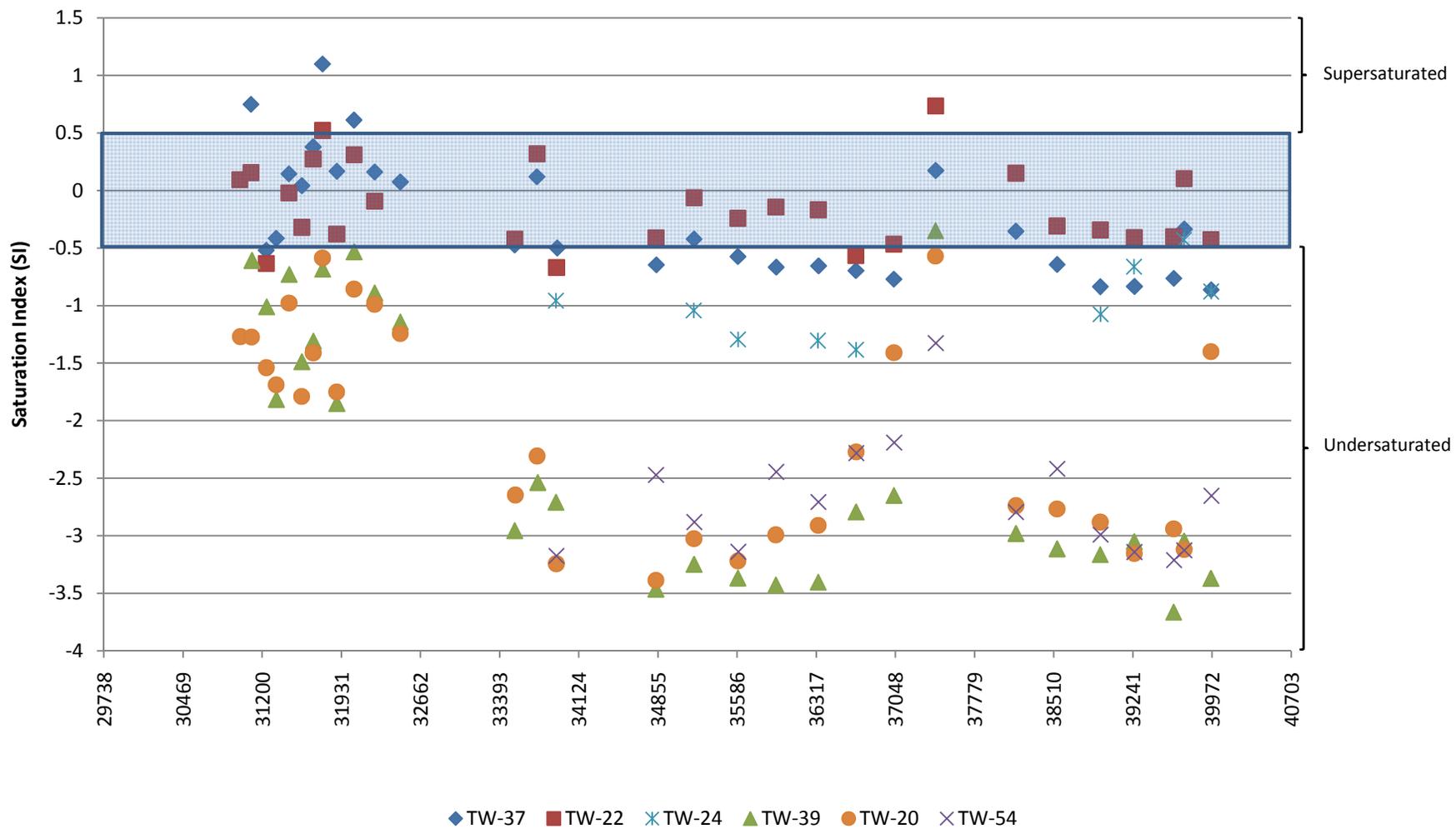
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Project Name		Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605	Checked	CR
Client Name		Monsanto	Date	November 2009	Reviewed	DB
					FIGURE	11



	Title UBZ-4 Otavite (CdCO ₃) SI vs time		Drawn FV
	Project Name Monsanto Soda Springs - Natural Attenuation		Checked CR
	Project No. 913-1101.605		Reviewed DB
	Client Name Monsanto		Date November 2009
			FIGURE 12

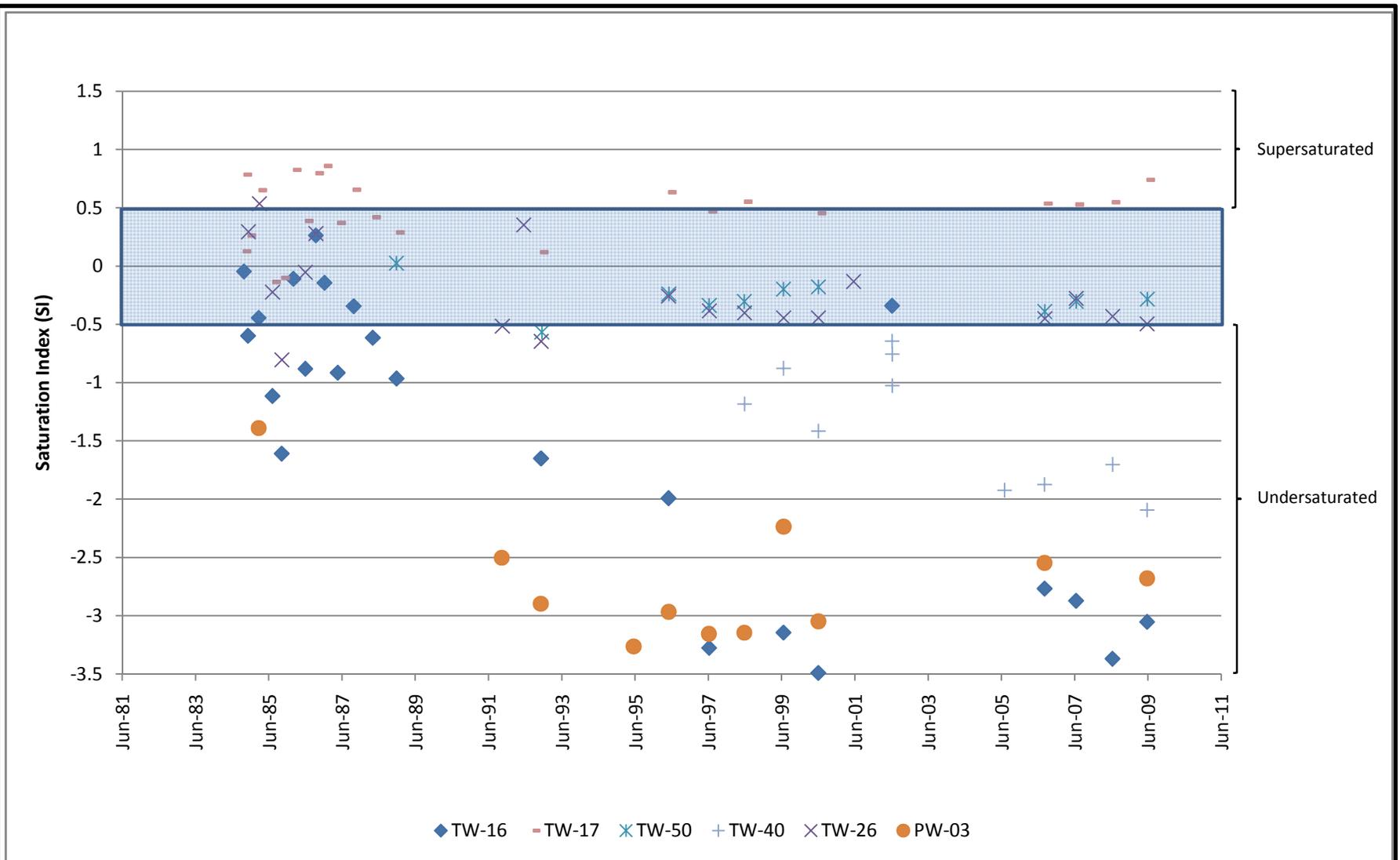


	Title		Drawn	FV
	Otavite (CdCO ₃) solubility curve		Checked	CR
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	Client Name	Monsanto	Date	November 2009
			Reviewed	DB
				FIGURE 13



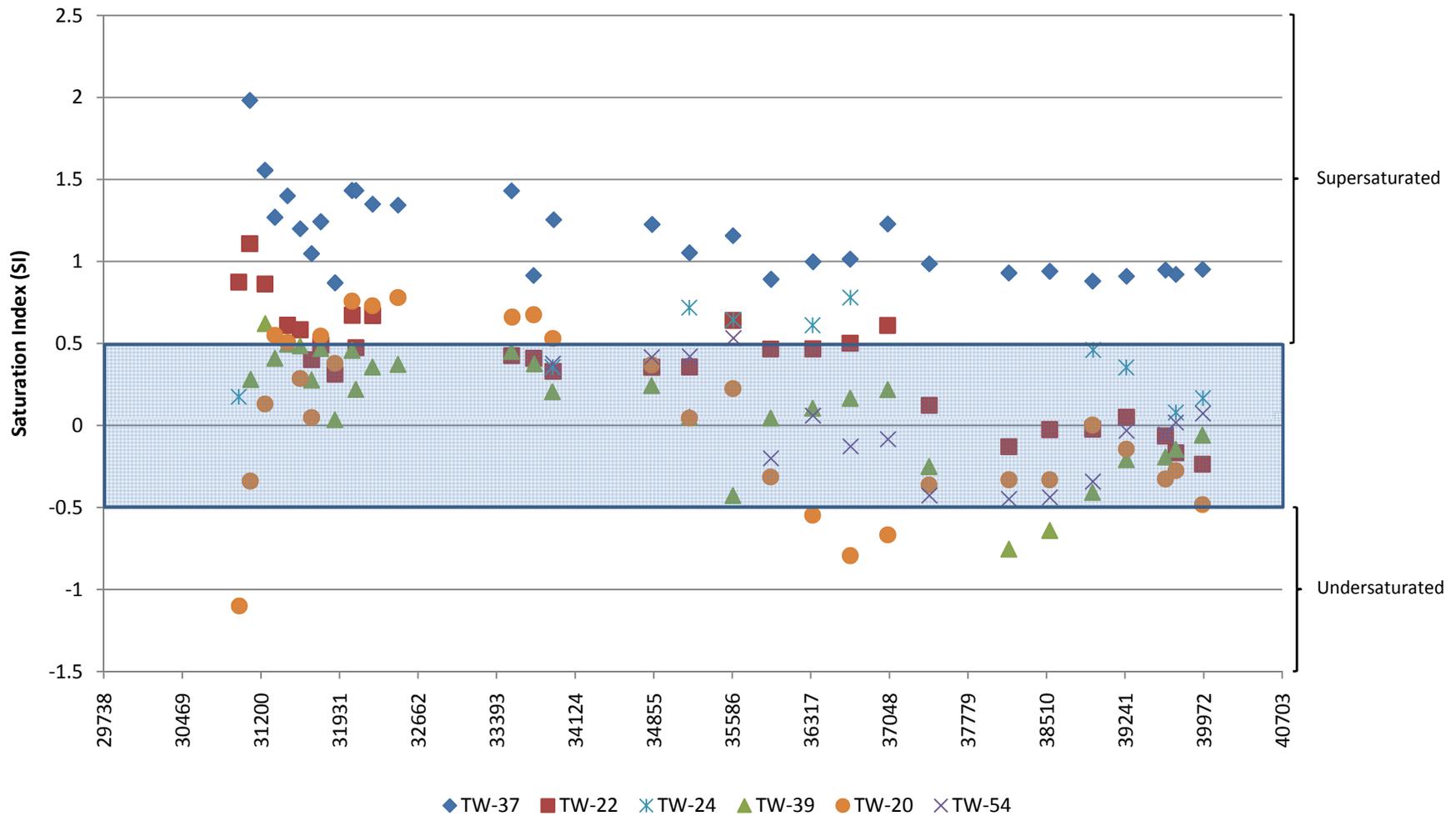
Title		UBZ-2 Rhodocrosite (MnCO ₃) SI vs time	
Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	FV
Checked	CR
Reviewed	DB
FIGURE 14	



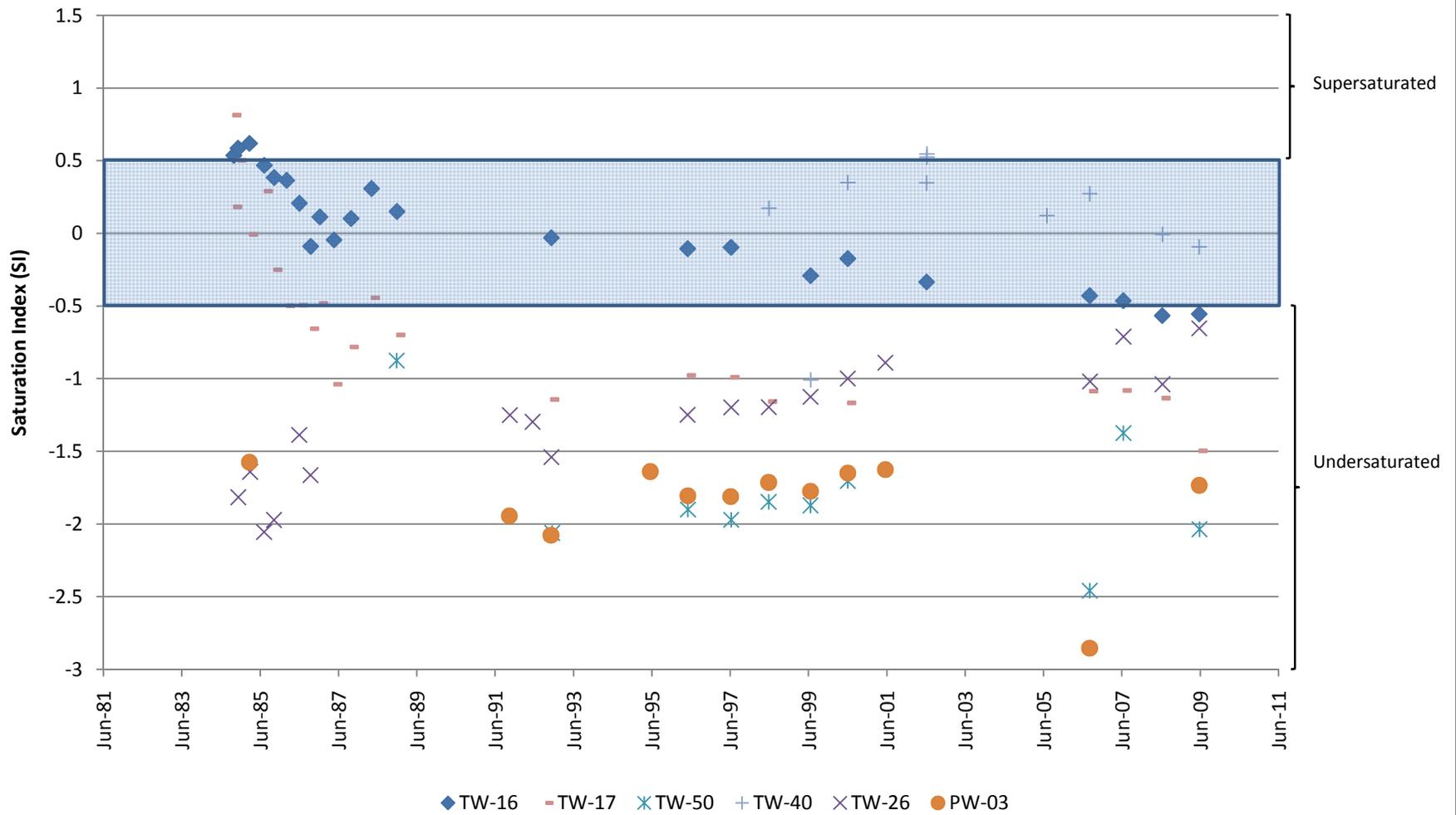
Title		UBZ-4 Rhodocrosite (MnCO ₃) SI vs time	
Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	FV
Checked	CR
Reviewed	DB
FIGURE	15



Title		UBZ-2 Fluorite (CaF ₂) SI vs time	
Project Name	Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605
Client Name	Monsanto	Date	November 2009

Drawn	FV
Checked	CR
Reviewed	DB
FIGURE	16



Title		UBZ-4 Fluorite (CaF ₂) SI vs time		Drawn	FV	
Project Name		Monsanto Soda Springs - Natural Attenuation	Project No.	913-1101.605	Checked	CR
Client Name		Monsanto	Date	November 2009	Reviewed	DB
					FIGURE	17

APPENDIX K
DATA VALIDATION SUMMARY FOR 2009 WATER SAMPLING
MONSANTO SODA SPRINGS



TECHNICAL MEMORANDUM

Date: November 17, 2009

Project No.: 913-1101.605A

To: Bob Geddes and Jim McCulloch

Company: Monsanto, Soda Springs, Idaho

From: Jill Lamberts, Staff Environmental Scientist; and Tom Stapp, Senior Project Chemist

cc: Michael Klisch and David Banton, GAI

Email: jill_lamberts@golder.com

**RE: DATA VALIDATION SUMMARY FOR 2009 ANNUAL WATER SAMPLING,
MONSANTO SODA SPRINGS**

Water quality samples were collected at the Monsanto Soda Springs Plant from May 28 to June 2, 2009. Water samples were collected from forty-eight wells or groundwater springs and eight surface water locations during the May-June sampling period.

The eight surface water locations include the effluent discharge pipe over Soda Creek (Effluent 1 through 3); the inlet to the effluent discharge pond (Pond Inlet); and Soda Creek upstream, midstream, and downstream of the effluent discharge pipe as well as above the downstream weir.

The groundwater and surface water quality samples were shipped under chain-of custody to SVL Analytical in Kellogg Idaho (primary laboratory) for analysis. Split samples were collected and sent to Analytical Resources Inc. in Seattle for analysis.

1.0 INTRODUCTION

This memo presents the results of data validation on Sample Delivery Groups (SDG) # W803360, W803361, W803396, W803397 prepared by SVL Analytical Inc. (SVL), Kellogg, Idaho, and NL58 prepared by Analytical Resources Inc. (ARI) of Seattle, Washington. A complete summary of sample identifications, locations and sample collection dates can be found in Table 5.0 of Attachment 5.

Analytical methodology utilized by SVL included the following:

- USEPA Method 6010 B: Ion Coupled Plasma Metals – Atomic Emission Spectrometry
- SM 2320 B: Alkalinity (including Bicarbonate and Carbonate)
- EPA 300.0: Anions (including Chloride [Cl⁻], Fluoride [F⁻], and Sulfate [SO₄])
- EPA 350.1: Ammonia as N (NH₃)
- EPA 353.2: Nitrate/Nitrite as N (NO₃/NO₂)
- EPA 6020: Selenium
- SM 2540 C: Total Dissolved Solids (TDS)
- SM 4500 P: Total Phosphorus (TP)
- SM 2320 M: Acidity
- EPA 200.7/200.8: Ion Coupled Plasma Metals – Mass Spectrometry

- EPA 245.1: Total Mercury
- SM 2120 B: Color
- SM 4500 H B: pH

Analytical methodology utilized by ARI included the following:

- USEPA Method 6010 B: Ion Coupled Plasma Metals – Atomic Emission Spectrometry
- SM 2320: Alkalinity
- EPA 300.0: Anions (including Chloride [Cl⁻], Fluoride [F⁻], and Sulfate [SO₄])
- EPA 350.1 Modified: Ammonia (NH₃)
- EPA 353.2: Nitrate + Nitrite (NO₃/NO₂)
- EPA 7740: Selenium
- EPA 365.2: Total Phosphorus (TP)
- EPA 160.1: Total Dissolved Solids (TDS)

Data validation was conducted in accordance with the USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review (EPA 2004), the Monsanto Quality Assurance Project Plan (QAPP) (Golder, 2006), and the 2009 Sampling Plan (Golder, 2009) and applicable analytical methods. The data review process provides information on analytical limitations of the data based on specific quality control (QC) criteria outlined in the referenced documents. Sections 2 through 9 of this report describe the QC criteria and the status of acceptability for each set of criteria. Qualification of results is indicated in the Section header as “Qualification Applied” (i.e., qualifiers were applied to selected sample results), or “Acceptable” (there were no qualifiers applied to the referenced sample results). Supporting information is provided in Attachments 1 through 5 as indicated:

- Attachment 1 Glossary of Data Reporting Qualifiers
- Attachment 2 Summary of Data Qualifications
- Attachment 3 Annotated Laboratory Reports
- Attachment 4 Laboratory Narrative and Chain-of-Custody Documentation
- Attachment 5 Supporting Documentation Text

2.0 SAMPLE HANDLING AND CUSTODY REQUIREMENTS

Custody of samples being sent off site for analysis were controlled and documented in accordance with Golder technical procedure TP-1.2-23, "Chain-of-Custody." Unique sample identification numbers were recorded on the Chain-of-Custody form along with sample location, matrix, and the other required information. The analyses required for each sample were also noted on the Chain-of-Custody form as indicated by the general parameter identifier (e.g., Anions, Metals, etc.), and/ or the method identifier number (e.g., EPA 300.0, EPA 6010, etc.).

2.1 General Chemistry Parameters – Qualification Applied

A summary of qualifications is provided in Table A-2.1 (Attachment 2), qualifiers added to applicable samples are provided on the Annotated Laboratory Reports (Attachment 3), and qualification descriptions are provided on the Data Validation Summary Checklists (Attachment 5).

2.1.1 Temperature

Sample custody was maintained throughout sample collection, transport, and laboratory receipt. All samples were received at $4 \pm 2^\circ\text{C}$ with the exception of coolers sent to SVL Analytical associated with samples in SDG #: W9F0136, W9F0140, W9F0203, and W9F0142.

Transport cooler temperatures for these samples were measured with an infra-red instrument and recorded at the laboratory upon receipt. Based upon the out-of-limit temperatures, associated results for anions (including F^- , Cl^- , NO_3/NO_2 , SO_4 and TP), NH_3 , alkalinity and TDS are qualified as estimated (J/UJ).

2.1.2 Preservation

Samples were collected in pre-preserved bottles or preserved in the field with vials of acid provided by the lab and designated for the appropriate analysis (e.g. H_2SO_4 added to $\text{pH} < 2$ for NO_3/NO_2). Samples were checked for preservation by SVL Analytical just prior to preparation and analysis (ARI Labs checked preservations upon receipt). All samples that required preservation were preserved to $\text{pH} < 2$ with the exception of individual samples sent to SVL Analytical in SDG #: W9F0136, W9F0137, and W9F0142.

Since samples were stored for 14-19 days before preparation and analysis, based upon the out-of-limit pH, associated results for NO_3/NO_2 and NH_3 for samples (90005, 90039, and 90076) are qualified as (J/UJ).

In addition, ARI Labs received two bottles labeled for metals analysis for sample 90011, but received no bottles for NO_3/NO_2 . An aliquot from an additional non-preserved bottle was preserved upon receipt for NO_3/NO_2 analysis.

2.2 Metals – All Associated Sample Results are Acceptable

Sample custody was maintained throughout sample collection, transport, and laboratory receipt. All samples were received at $4 \pm 2^\circ\text{C}$ with the exception of coolers associated with all samples in SDG #: W9F0136, W9F0140, W9F0203, and W9F0142.

The EPA guidance document „Low Stress Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells’ (EPA, 1996) states “Metal samples, after acidification to a $\text{pH} < 2$ do not need to be cooled”. All sample bottles prepared for metal analysis were properly preserved, in the field, with nitric acid according to chain of custody and sample receipt records. Therefore, the validator

deems associated samples to be unaffected by out-of-limit temperatures and metal results in the associated SDG are not qualified.

3.0 HOLDING TIMES

Holding times are evaluated to determine the acceptable and cumulative period of time for sample shipment, storage, and preparation before analysis is performed. The objective is to ascertain the validity of analytical results based on the holding time of the sample from the time of collection to the time of analysis. Table A-5.1 in Attachment 5 provides a summary of holding time data for each analysis performed.

3.1 General Chemistry Parameters – Qualification Applied

All analyses were extracted and performed within the recommended maximum holding time, with the exception of:

- TDS analysis for samples 90001, 90002, 90004, 90005, 90006, 90007, and 90008 in SDG # W9F0136
- Alkalinity, Carbonate and Bicarbonate for samples 90055, 90057, 90058, 90059, 90060, 90061, and 90062 in SDG # W9F0140
- Color and pH for samples 90063, 90064, and 90065 in SDG # W9F0203

An estimated (J/UJ) qualifier is applied to the samples cited. A summary of qualifications is provided in Table A-2.1 (Attachment 2), qualifiers added to applicable samples are provided on the Annotated Laboratory Reports (Attachment 3), and qualification descriptions are provided on the Data Validation Summary Checklists (Attachment 5).

3.2 Metals – All Associated Sample Results are Acceptable

All analyses were extracted and performed within the recommended maximum holding time.

4.0 CALIBRATION/INSTRUMENT PERFORMANCE MONITORING

Compliance requirements for satisfactory instrument calibration and performance monitoring were evaluated. Initial calibration demonstrates that the method used is capable of acceptable quantitative and qualitative performance before proceeding with QC and sample analysis. Continuing calibration demonstrates that the method is capable of performance on a continuing basis during and including sample and QC analyses. The required procedures, frequency, and performance were evaluated.

4.1 General Chemistry – All Associated Sample Results are Acceptable

4.1.1 Performance and Calibration

Method performance and calibration criteria were met. Initial calibration verification (ICV) and continuing calibration verifications (CCVs) were performed demonstrating acceptable performance.

4.2 Metals – All Associated Sample Results are Acceptable

4.2.1 Performance and Calibration

Method performance and calibration criteria were met. Initial calibration verification (ICV) and continuing calibration verifications (CCVs) were performed demonstrating acceptable performance.

Please note that in SDG # W9F0136, the CCV % recoveries for Mo and Zn were 89% for a CCV run at 11:50pm. No action was taken as a second CCV was immediately run and the % recoveries were found to be in control.

5.0 BLANKS

The assessment of blank analysis results is to determine the existence and magnitude of contamination resulting from laboratory activities. In addition, the evaluation of field blanks is assessed to monitor field related activities and is discussed in Section 8.

5.1 General Chemistry – All Associated Sample Results are Acceptable

A method blank was analyzed at the required frequency in each SDG and was target analyte-free. Therefore, the method blank stands as an indicator that the associated samples contained in the analytical batch are also unaffected by contamination from laboratory preparation procedures.

5.2 Metals – Qualification Applied

Method blanks and continuing calibration blanks (CCBs) were analyzed at the required frequency in each SDG and were target analyte-free, with the exception of:

- Vanadium for sample 90027 in SDG # W9F0137
- Sodium for sample 90049 in SDG # W9F0140
- Zn for samples 90046, 90049, 90054, 90055, 90057, 90061, and 90062 in SDG # W9F0140

Qualification of results deviates slightly from data validation guidelines. The guidelines suggest raising a detected amount in a sample between the method detection limit (MDL) and the practical quantitation limit (PQL), to the PQL with a non-detect qualifier (U). Alternately, professional judgement is allowed to apply an estimated qualifier with a high bias (J+). This allows a blank bias to show for analytes present at trace or up to ten times the blank value, for the affected sample. The “J+” qualifier was applied in cases where the result was greater than the PQL but less than 10X the blank contamination in each case specified and allows the data user to assess the level of impact from the blank contamination. A “U” qualifier was applied in cases where a result was greater than the MDL, but less than the PQL.

A summary of qualifications is provided in Table A-2.1 (Attachment 2), qualifiers added to applicable samples are provided on the Annotated Laboratory Reports (Attachment 3), and qualification descriptions are provided on the Data Validation Summary Checklists (Attachment 5).

6.0 SYSTEM MONITORING

System monitoring serves as a monitor for specific portions of the overall performance of the analytical method. System monitoring includes instrument checks, sample batch checks, and individual sample performance checks. Data for laboratory control samples (LCS) or standard reference materials (SRM) are provided in order to evaluate the accuracy and performance of the analytical method. Performance criteria ensure that instrument sensitivity and responses are stable throughout the analysis.

An ICP Serial Dilution of samples is performed to determine whether or not significant physical or chemical interferences exist due to sample matrix.

6.1 General Chemistry – Qualification Applied

6.1.1 Laboratory Control Sample or Standard Reference Material

LCS or SRM samples were analyzed associated with each SDG. Goals for recovery of LCS or SRM samples were met. Therefore, general chemistry analytes exhibit stable instrument response during the period of batch analysis, and sample results are deemed acceptable for accuracy and precision associated with each SDG. The only exception was for:

- Total Phosphorus (TP) in SDG # PB30

The SRM % recovery was out of control high. All associated TP samples in this SDG were qualified as estimated (J) and could have positive bias because of the higher recovery of the control sample.

6.2 Metals – Qualification Applied

6.2.1 Laboratory Control Sample

LCS samples were analyzed associated with each SDG. Goals for recovery of LCS samples were met. Therefore, metal analytes exhibit stable instrument response during the period of batch analysis, and sample results are deemed acceptable for accuracy and precision associated with each SDG.

6.2.2 Serial Dilution

A Serial Dilution was performed for each SDG except for ARI SDG # PB30. Goals for recovery (% difference) of the serial dilutions were met with the exception of:

- Selenium in SDG # W9F0140

The Serial Dilution %D was out of control high. All associated selenium samples in this SDG were qualified as estimated (J) and could have significant physical or chemical interferences due to sample matrix.

A summary of qualifications is provided in Table A-2.1 (Attachment 2), qualifiers added to applicable samples are provided on the Annotated Laboratory Reports (Attachment 3), and qualification descriptions are provided on the Data Validation Summary Checklists (Attachment 5).

7.0 MATRIX SPIKE AND DUPLICATE ANALYSES

The spiked sample analysis is designed to provide information about the effect of each sample matrix on the sample preparation procedures and the measurement methodology. Non-homogeneous samples can impact the apparent method recovery. Aqueous samples are generally homogeneous and soil samples are generally homogeneous within a factor of two or three. The data validator has assumed samples selected for spiking to be of a homogeneous nature, however similarity of matrix from sample to sample could be highly variable. Therefore, the project manager should determine the scope of influence on associated samples if out of limit conditions exist for a spiked sample.

7.1 General Chemistry – Qualification Applied

7.1.1 Precision and Accuracy

Matrix spike (MS) analyses were performed on samples associated with chloride, fluoride, sulfate, ammonia, nitrate, and phosphorus analyses. Goals for precision and accuracy were met in each SDG with the exception of:

- Total Phosphorus (TP) in SDG # PB30

The MS % recovery was out of control low. All associated TP samples in this SDG were already qualified as estimated (J) because of an out of control SRM. Interfering sample matrix is likely the cause of the poor MS recovery.

7.1.2 Exceptions and Notes

Analytical methodology and data validation guidelines for inorganic analytes state that qualification of results „does not apply’ when the sample result for the MS contains more than four times the level of the spiking solution. The MS performed on the inorganic analytes were generally spiked at an appropriate level with the following exceptions:

- NO₃/NO₂ for the MS performed in SDGs #W9F0136, W9F0140, W9F0142, and W9F0203

Analytical methodology and data validation guidelines for metal analytes state that for results less than five times the CRDL, duplicate RPD criteria and calculations „do not apply’. Duplicate calculations and RPD results were less than the criteria with the following exceptions:

- NH₃, Alkalinity (including Bicarbonate and Carbonate), F⁻ and SO₄ %RPD for the duplicate analysis in SDGs #W9F0140 and W9F0142 was not calculated
- NH₃ %RPD for the duplicate analysis in SDG #W9F0136 was not calculated
- NO₃/NO₂ and Carbonate %RPD for the duplicate analysis in SDG #W9F0137 was not calculated
- Color and Carbonate %RPD for the duplicate analysis in SDG #W9F0203 was not calculated

The Grundfos Blank (#90067) was used as the parent sample for F⁻, Cl⁻ and SO₄. No action was taken other than to note here as the samples are submitted to the lab with ‚blind’ sample IDs. Future sampling could involve instructing the lab to perform MS/MSDs on particular samples by providing extra volume.

A summary of qualifications is provided in Table A-2.1 (Attachment 2), qualifiers added to applicable samples are provided on the Annotated Laboratory Reports (Attachment 3), and qualification descriptions are provided on the Data Validation Summary Checklists (Attachment 5).

7.2 Metals – Qualification Applied

7.2.1 Precision and Accuracy

Matrix spike (MS) analyses were performed on selected samples in the indicated SDGs for all associated analytes. Goals for precision and accuracy were met in each SDG with the exception of:

- Mg, Na and Ca in SDG # W9F0137
- Al in SDG # W9F0203

The MS % recoveries were out of control high or low. An estimated (J/UJ) qualifier was applied to the parent sample (sample #90024 for Mg, Na, and Ca and #90063 for Al) as similarity of matrix from sample to sample could be highly variable.

7.2.2 Exceptions

Analytical methodology and data validation guidelines for metal analytes state that qualification of results ‚does not apply’ when the sample result for the MS contains more than four times the level of the spiking solution. The MS performed on the metal analytes were generally spiked at an appropriate level with the following exceptions:

- Ca, Mg, and Na for the MS performed in SDG #PB30
- Hg for the MS performed in SDG #W9F0203

Analytical methodology and data validation guidelines for metal analytes state that for results less than five times the CRDL, duplicate RPD criteria and calculations ‚do not apply’. Duplicate calculations and RPD results were less than the criteria with the following exceptions:

- Ca and Mn %RPD for the duplicate analysis in SDG # PB30 was not calculated
- Be, Ag, Cd, TI, and Se by EPA 200.7/200.8 %RPD for the duplicate analysis in SDG # W9F0203 was not calculated

The Grundfos Blank (#90067) was used as the parent sample for Se. No action was taken other than to note in the report as the samples are submitted to the lab with ‚blind’ sample IDs. Future sampling could involve instructing the lab to perform MS/MSDs on particular samples by providing extra volume.

A summary of qualifications is provided in Table A-2.1 (Attachment 2), qualifiers added to applicable samples are provided on the Annotated Laboratory Reports (Attachment 3), and qualification descriptions are provided on the Data Validation Summary Checklists (Attachment 5).

8.0 FIELD QUALITY CONTROL SAMPLES

Blind field duplicates and field blanks were collected to give an indication of overall field sampling precision and overall performance. Field split samples were also collected to be analyzed for identical parameters but at different laboratories. The field duplicate and field split sample results may have more variability than laboratory duplicates, which measures only analytical or method precision. Therefore, relative percent differences between field duplicates and field splits are noted for review, but results for these QC samples and the sample results associated with them are typically not qualified. The field blank was analyzed to determine the existence and magnitude of contamination resulting from field activities.

8.1 General Chemistry and Metals – Qualification Applied

8.1.1 Field Duplicate

Sample locations TW-11, TW-33, TW-39, TW-55, and TW-62 were identified for field duplicate analysis. Table 5.0 in Attachment 5 lists the sample locations and field duplicate pair sample identification numbers. Table 5.2 in Attachment 5 provides a field duplicate comparison with relative percent difference (RPD) calculations for each analysis requested. RPD were within the +/- 20% limit for all field duplicate pair analyses with the following exceptions:

- TW-39 (#90005 and #90006), the SO₄, Bicarbonate, Alkalinity, and TDS RPDs were greater than the 20% limit, although all other analytes were within the limit.
- For sample TW-55 (#90071 and #90072), the F⁻, Bicarbonate, Alkalinity and TDS RPDs were greater than the 20% limit, although all other analytes were within the limit.

Upon investigation, it appears that the sample pH was less than 2 for the analysis of sample #90005 of the field duplicate set. As the field pH measurement was ~7-8, the data validator has concluded that the samples were likely preserved with acid in the field or at the lab. Sample results for #90005 and #90006 were qualified as estimated (UJ/J) for SO₄, Bicarbonate, Alkalinity and TDS.

Upon investigation, it appears that the sample pH was less than 2 for the analysis of sample #90071 of the field duplicate set. As the field pH measurement was ~7-8, the data validator has concluded that the samples were likely preserved with acid in the field or at the lab. Sample results for #90071 and #90072 were qualified as estimated (UJ/J) for F⁻, Bicarbonate, Alkalinity and TDS.

Qualification for field duplicate pair results that are out of limit are not applied in Data Validation assessments according to National Functional Guidelines (EPA, 2004). However, the project manager may comment on the level of acceptability for field duplicate performance, since variability can be a consequence of field handling, sample storage, or laboratory performance.

8.1.2 Field Blanks

Sample 90049 is identified as a deionized water blank, and sample 90067 is identified as a Grundfos equipment blank. Trace analytes were detected in:

- 90049 for total alkalinity, bicarbonate and sodium
- 90067 for chloride, phosphorus, calcium, and magnesium

Each trace detection is above both the MDL and the PQL and does not show a significant contamination trend. Qualification of associated results is advisory when field blank detections are found. However, the project manager may comment on the level of acceptability for field blank performance, since variability can be a consequence of field handling, sample storage, or laboratory performance. A summary of detections found is provided in Table 5.4 in Attachment 5.

8.1.3 Field Split Comparison

Sample locations TW-12, TW-20, TW-33, TW-54, and TW-59 were selected for field split collection and analysis at separate laboratories. Representative media from each location was sent to SVL, in Kellogg, Idaho, and ARI, in Seattle, Washington. The samples were tested using identical methodology in most cases, however reporting limit differences were reported. Table 5.0 in Attachment 5 lists the sample locations and field split sample identification numbers. Table 5.2 in Attachment 5 provides a field split comparison with relative percent difference (RPD) calculations for each analysis requested. RPDs were within the $\pm 20\%$ limit for all field split analyses, with the exception of:

- Total phosphorus in TW-12
- Total phosphorus in TW-20
- Total phosphorus and TDS in TW-33
- Total phosphorus and selenium in TW-55
- Total phosphorus and selenium in TW-59

Qualification for field split results that are out of limit are not applied in data validation assessments according to National Functional Guidelines (EPA, 2004). However, the project manager may comment on the level of acceptability for field split performance, since variability can be a consequence of field handling, sample storage, or laboratory performance.

9.0 OVERALL ASSESSMENT

Overall assessment was performed on the entire data package. Review of the data results was performed in conjunction with the governing plan.

9.1 General Chemistry – All Associated Sample Results are Acceptable.

An assessment of the following criteria associated with general chemistry results was performed and the criteria were found to meet the guidelines of the governing plan.

9.1.1 Detection Limits

Detection limit goals were met for all results except for NO₃/NO₂ analyzed by SVL Analytical. The RL was reported at 0.05 mg/L rather than 0.02 mg/L, as requested. No action was taken other than to note.

9.1.2 Target Analyte Identification and Quantitation

All sample results were supported in the raw data except for the data provided by ARI. No action was taken as the raw data was not required because the purpose of the sample results from ARI were for field split comparisons.

9.1.3 Completeness

The data packages were complete for all requested analyses. A total of seventy samples were validated in the data packages with a total of 620 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90 percent.

9.2 Metals – All Associated Sample Results are Acceptable.

An assessment of the following criteria associated with metal results was performed and the criteria were found to meet the guidelines of the governing plan.

9.2.1 Detection Limits

Detection limit goals were met for all results except for Ca analyzed at ARI labs. The RL was reported at 0.05 mg/L rather than 0.04 mg/L, as requested. No action was taken other than to note.

9.2.2 Target Analyte Identification and Quantitation

All sample results were supported in the raw data except for the data provided by ARI. No action was taken as the raw data was not required because the purpose of the sample results from ARI were for field split comparisons.

9.2.3 Completeness

The data packages were complete for all requested analyses. A total of 77 samples were validated in the data packages with a total of 1647 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90 percent.

10.0 DATA VALIDATION AND USABILITY

Data were validated by Golder personnel, based on the applicable elements of the USEPA Functional Guidelines for Inorganic Data Review, USEPA Contract Laboratory Program (EPA, 2004), Golder technical procedure TP-2-2-12 “Analytical Data Management” (Golder 1995), applicable reference method requirements as appropriate, and the Quality Assurance Project Plan (Golder, 2006).

Data generated in the field or by the subcontractor laboratory were reviewed. Original data was copied and retained in the project file. Working copies were distributed to personnel designated by the Lead Analytical Chemist for validating/verifying analytical data and to the Data Management Specialist.

Validation/verification and data management activities were organized by analytical fraction (i.e. Metals, General Chemistry). All hard copy or electronic deliverable data were reviewed against chain-of-custody for verification of sample identification and analyses requested. Any incorrect data or discrepancies noted in the verification were resolved with project management and/or the data generator. Any corrections to the original data were noted on the batch log and corrected data sheets or electronic deliverables were issued if necessary. After the completion of data validation/verification any qualifiers or other comments noted in the validation/verification process assigned to the data are entered into the qualifier or comment section of the database as appropriate. The final database summary report is reviewed by appropriate personnel before inclusion to this report. A glossary of data qualifiers is provided in Attachment 1.

The analytical data resulting from analysis of ground water quality monitoring in support of the Monsanto groundwater compliance monitoring are acceptable for their intended use with the exception of those deficiencies noted. Limitations and sources of existing data are stated and clearly identified where applicable. Validated data are included in Attachment 3.

11.0 REFERENCES

EPA 2004, USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review, Final, EPA-540/R-00-006, October, 2004.

Golder, 2009, Golder Associated Inc. Sampling of Surface Water on West Side of the Monsanto Plant, Technical Memorandum; Submitted to Monsanto Company, April 23, 2009.

Golder, 2006, Golder Associates Inc., Quality Assurance Project Plan for Hydrogeological Investigations and Water Sampling at the Monsanto Soda Springs Facility, Soda Springs, Idaho, Revision 0; Submitted to Monsanto Company, July 14, 2006.

Golder 1995a, Golder Associates Inc., Technical Procedure TP-1.2-23, "Chain of Custody", Golder Associates Inc., Redmond, Washington.

Golder 1995b, Golder Associates Inc., Technical Procedure TP-2.2-12, "Analytical Data Management", Golder Associates Inc., Redmond, Washington.

ATTACHMENTS

- Attachment 1 Glossary of Data Reporting Qualifiers
- Attachment 2 Summary of Data Qualifications
- Attachment 3 Annotated Laboratory Reports
- Attachment 4 Laboratory Narrative and Chain-of-Custody Documentation
- Attachment 5 Supporting Documentation

List of Attachment Tables

Attachment 2: Summary of Data Qualifications

Table A-2.1 Summary of Data Qualifications

Attachment 5: Supporting Documentation

Table A-5.0 Summary Sample List

Table A-5.1 Analytical Holding Time Summary

Table A-5.2 Field Duplicate Comparison Summary

Table A-5.3 Laboratory Split Comparison / SVL Analytical and Analytical Resources, Inc.

Table A-5.4 Field Blank Summary

ATTACHMENT 1
GLOSSARY OF DATA REPORTING QUALIFIERS

INORGANIC QUALIFIERS

- U:** The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the instrument detection limit.
- B:** The associated value is greater than the instrument detection limit but less than the associated sample quantitation limit.
- J:** The associated value is an estimated quantity.
- J+:** The result is an estimated quantity, but the result may be biased high.
- J-:** The result is an estimated quantity, but the result may be biased low.
- R:** The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. (Note: analyte may or may not be present).
- UJ:** The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

TABLE A-2.1
Data Qualification Summary

PROJECT: 913-1101-605A		DATE VALIDATED:		8/18/2009
Parameter	Qualifier	Samples Affected	Reason	Value
SVL SDG # W9F0136 Comments:				
Anions, Alkalinity, Ammonia, TDS, Nitrate/Nitrite as N, Phosphorus	J/UJ	90013, 90014, 90015, 90016, 90017, 90018, 90019, 90020, 90021, 90022	Cooler temperature exceeds limit	7.1°C
Nitrate/Nitrite as N, Ammonia	J/UJ	90005	Samples analyzed with pH > 2	pH > 2
TDS	J/UJ	90001, 90002, 90004, 90005, 90006, 90007, 90008	Holding time exceeded	8 days
Sulfate	J/UJ	90005, 90006	Field duplicate %RPD > 20%	147.7%
Bicarbonate	J	90005, 90006	Field duplicate %RPD > 20%	200.9%
Alkalinity	J	90005, 90006	Field duplicate %RPD > 20%	200.9%
TDS	J	90005, 90006	Field duplicate %RPD > 20%	76.7%
SVL SDG # W9F0137 Comments:				
Nitrate/Nitrite as N, Ammonia	J/UJ	90039	Samples analyzed with pH > 2	pH > 2
V	U	90027	Contaminant found in CCB	< RL
Mg	J	90024	Matrix spike % recovery out of 75-125% control limits	129%
Na	J	90024	Matrix spike % recovery out of 75-125% control limits	133%
Ca	J	90024	Matrix spike % recovery out of 75-125% control limits	71%
SVL SDG # W9F0140 Comments:				
Anions, Alkalinity, Ammonia, TDS, Nitrate/Nitrite as N, Phosphorus	J/UJ	90044, 90045, 90046, 90047, 90048, 90049, 90050, 90051, 90052, 90053	Cooler temperature exceeds limit	8.1°C
Alkalinity, Carbonate, Bicarbonate	J/UJ	90055, 90057, 90058, 90059, 90060, 90061, 90062	Holding time exceeded	23-24 days
Na	J+	90049	Contaminant found in CCBs	< 10X contamination value, > RL
Zn	U	90046, 90049	Contaminant found in CCBs and Prep. Blank	< RL
Zn	J+	90054, 90055, 90057, 90061, 90062	Contaminant found in blank	< 10X contamination value, > RL
Se	J/UJ	All: 90044-90055, 90057-90062	Serial dilution > 10% D for results > 50X IDL	14%

TABLE A-2.1
Data Qualification Summary

PROJECT: 913-1101-605A		DATE VALIDATED:		8/18/2009
Parameter	Qualifier	Samples Affected	Reason	Value
SVL SDG # W9F0203 Comments:				
Anions, Alkalinity, Ammonia, TDS, Nitrate/Nitrite as N, Phosphorus	J/UJ	90063, 90064, 90065	Cooler temperature exceeds limit	8.1°C
Color, pH	J/UJ	90063, 90064, 90065	Holding time exceeded	7 days
Al	J	90063	Matrix spike % recovery out of 75-125% control limits	149%
SVL SDG # W9F0142 Comments:				
Anions, Alkalinity, Ammonia, TDS, Nitrate/Nitrite as N, Phosphorus	J/UJ	90066, 90067, 90068, 90069, 90071, 90072, 90073, 90074, 90075, 90076, 90077	Cooler temperature exceeds limit	8.1°C 9.2°C
Nitrate/Nitrite as N, Ammonia	J/UJ	90076	Samples analyzed with pH > 2	pH > 2
Fluoride	J/UJ	90071, 90072	Field duplicate %RPD > 20%	69.8%
Bicarbonate	J/UJ	90071, 90072	Field duplicate %RPD > 20%	200.5%
Alkalinity	J/UJ	90071, 90072	Field duplicate %RPD > 20%	200.5%
TDS	J/UJ	90071, 90072	Field duplicate %RPD > 20%	79.2%
ARI SDG # PB30 Comments:				
Phosphorus	J	90003, 90011, 90032, 90056, 90070	SRM % recovery out of 80-120% control limits	122%
Phosphorus	J	90003	Matrix spike % recovery out of 75-125% control limits	-48%

ATTACHMENT 3
ANNOTATED LABORATORY REPORTS

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

PROJECT: 9131101.605A	SITE: Monsanto, Soda Springs, Idaho
LABORATORY: Analytical Resources, Inc. SVL Analytical	SDG: W9F0203
SAMPLES: 90063, 90064, 90065	MATRIX: groundwater
COLLECTION DATE: 6/2/2009	

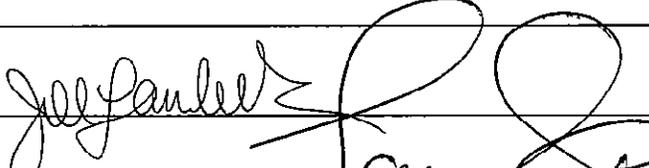
DATA ASSESSMENT SUMMARY

REVIEW ITEM	Alkalinity	6610 2007/8			P, Color, TDS, pH	F, Cl, SO ₄	NO ₂ NO ₃ NH ₃	
	ICPTAES	ICP/MS			Hg/Se	Cyanide	Anions	Other
1. Data completeness ①, ②	X	0	0	0	0	X	X	X
2. Holding times ③	0	0	0	0	0	X	0	0
3. Calibration	n/a	0	n/a	n/a/0	n/a	n/a	n/a	n/a
4. Blanks	0	0	0	0	0	0	0	0
5. Duplicate PRD/Lab Precision	0	0	0	0	0	0	0	0
6. LCS, Blank Spike, MFS	0	0	0	0	0	0	0	0
7. Matrix Spike, MSD ④	0	0	X	0	0	0	0	0
8. GFAA, MAS, Serial Dil.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9. Detection Limits, Other QC	0	0	0	0	0	0	0	0
10. Field duplicates	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
11. Data verification, Overall Summary ①	0	0	0	0	0	0	0	0

0 = Data had no problems
 X = Data qualified due to minor problems [typically estimated data (J or UJ)]
 M = Data qualified due to major problems [typically more than 50% qualified (J/UJ)]
 Z = Data unacceptable [typically data rejected (R)]

Comments/qualified results:

- ① - No raw data provided for alkalinity, P, Color, TDS, pH, F, Cl, SO₄, NO₂/NO₃, NH₃, Hg, and metals by 2007/2008 → ICP, CCB, calibrations, preparations not evaluated. OK per PM
- MBAS, odor were not analyzed due to insufficient volume
- ② Cooler temp @ 8.1°C qual J/UJ/all non-metals results
- ③ Color + pH analyzed out of hold /qual J/UJ/all samples
- ④ AR (by 2007) MS% out of control high @ 149% ~~qual J/UJ~~ 90063; Smp. result is less than RL and No qualif is applied. MS

Validated by:  Date: 8/18/2009
 Reviewed by:  Date: Aug. 29, 2009

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
 Yes No
jsf

1. Data package completeness (check if present)

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Case Narrative | <input checked="" type="checkbox"/> Instrument Detection Limits | <input checked="" type="checkbox"/> Acceptable
<input checked="" type="checkbox"/> Absent
<input type="checkbox"/> Not required for data package requested. |
| <input checked="" type="checkbox"/> Chain of Custody | <input checked="" type="checkbox"/> ICP Correction Factors | |
| <input checked="" type="checkbox"/> Sample Results | <input checked="" type="checkbox"/> ICP Linear Range | |
| <input checked="" type="checkbox"/> ICP/CCV Results | <input checked="" type="checkbox"/> Preparation Logs | |
| <input checked="" type="checkbox"/> Blank Results | <input checked="" type="checkbox"/> Analysis Run Logs | |
| <input checked="" type="checkbox"/> ICP Interference Check Results | <input checked="" type="checkbox"/> ICP Raw Data <i>*</i> | |
| <input checked="" type="checkbox"/> Spike Recovery Results | <input type="checkbox"/> GFAA Raw Data | |
| <input checked="" type="checkbox"/> Duplicate Results | <input type="checkbox"/> Mercury Raw Data | |
| <input checked="" type="checkbox"/> LCS Results | <input type="checkbox"/> Cyanide Raw Data | |
| <input checked="" type="checkbox"/> Standard Addition Results | <input type="checkbox"/> Other (please specify) _____ | |
| <input checked="" type="checkbox"/> ICP Serial Dilution | | |

Comments/Qualified Results:

CN: samples analyzed for metals as indicated on COC + 1^o + 2^o inorg-drinking water constituent per client request provided.

- MBAS, mercury, + odor were not analyzed due to insufficient sample volume.

*No raw data provided for anions, NO₂/NO₃/NH₄ + 200.7/200.8 - request to lab 8/18/2009 → **not required for these samples**

Cooler Temp @ 8.1°C → Qual J/UJ | all non-metals results

2. Holding times (check all that apply):

- ICP/GFAA metals analyzed in 6 months from collection
 - Mercury analyzed in 28 days from collection
 - Cyanide analyzed in 14 days from collection
- ✓ anions, NO₂/NO₃, NH₄, alkalinity, TDS, etc w/ln holdtime*

Comments/Qualified Results:

Color + pH analyzed out of hold. Qual J/UJ | all samples.

3. Calibrations (check all that apply):

- ICV/CCV %R for ICP/AA, 90%-110%, results acceptable
- ICV/CCV %R for ICP/AA, 75%-89% or 111%-125%, results estimated (J/UJ)
- ICV/CCV %R for ICP/AA, <75% or >125%, reject positive results (R)
- ICV/CCV %R for Mercury, 80%-120%, results acceptable
- ICV/CCV %R for Mercury, 65%-79% or 121%-135%, results estimated (J/UJ)
- ICV/CCV %R for Mercury, <65% or >135%, reject positive results (R)
- ICV/CCV %R for Cyanide, 85%-115%, results acceptable
- ICV/CCV %R for Cyanide, 70%-84% or 116%-130%, results estimated (J/UJ)
- ICV/CCV %R for Cyanide, <70% or >130%, reject positive results (R)
- CRDL Check Std %R 70-130% (50-150% Sb, Pb, Tl)

Comments/Qualified Results:

OK for 6070 results

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
 Yes No

4. Blanks (check all that apply):

- Detects reported in ICB/CCB list: see below
- Detects in preparation blanks, list: _____
- Detects in field blanks, list: N/A

Qualify as undetected (U) all sample concentrations $\leq 10X$ any associated blank concentrations and less than the PQL, or J+ for samples greater than the PQL.

Comments/Qualified Results: _____

NaCCB @ 37.292 J in W924119 on 6/11/09 @ 759 }
 NaCCB @ 21.639 J ↓ ↓ ↓ ↓ 826 } No action - all results > 10x blank
 NaCCB @ 42.300 J ↓ ↓ ↓ ↓ 941 }

5. Duplicate Sample Analysis (check all that apply):

- Duplicate RPD $\leq 20\%$ for waters, $\leq 35\%$ for soils for results $> 5X$ CRDL
- Duplicate range within $\pm CRDL$ ($\pm 2X CRDL$ for soils) for results $< 5X$ CRDL

Comments/Qualified Results: _____

- No RPDs calculated for Be(200.7), Ag(200.7), Cd(200.8), Tl(200.8), color, Carbonate because results $< 5X$ CRDL.
- Se (200.8) RPD @ 33%. No action. Results $< 5X$ CRDL.

6. Laboratory Control Samples, Blank Spikes, MFS (check all that apply):

- LCS %R 80-120%, [50-150% for Ag, Sb]
- LCS % 50-79% or $> 120\%$, results $> IDL$ estimated (J)
- LCS %R 50-79% and results $< IDL$ estimated (UJ)
- LCS %R $< 50\%$ and all results rejected (R/UR)

Comments/Qualified Results: _____

7. Spike Recovery (check all that apply):

- Spike %R within 75%-125%
- Spike %R 30%-74% or $> 125\%$, results $< IDL$ estimated (J)
- Spike %R 30%-74%, results $< IDL$ estimated (UJ)
- Spike %R $< 30\%$, results $< IDL$ rejected (UR), results $> IDL$ estimated (J)
- Field blank used for spike analysis
- Post digest spk reqrd: %R 75-125% except Ag

Comments/Qualified Results: _____

No MS %R for Hg, NO₂/NO₃: No action Result $> 4X$ Spike amt
 Al(200.7) %R out of control high. LCS in control (J/UJ) parent sample only (90063)
 Na(200.7) %R flagged as unusable due to inappropriate spike amt. No action
 %R in control.

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

8. GFAA¹ Performance (check all that apply):.....

- Duplicate injection RSD <20%
- Duplicate injection RSD >20%, results >CRDL estimated (J)
- Analytical spike %R 85%-115%
- Analytical spike %R 40%-85%, results >IDL estimated (J)
- Analytical spike %R 10%-40%, results <IDL estimated (UJ)
- Analytical spike %R <10%, results <IDL rejected (R)

n/a.

Comments/Qualified Results: n/a

9. Detection Limits, Other QC:

Comments/Qualified Results: _____

Se PQL @ 1-2 µg/L, rather than ~~0.003~~ 3µg/L. No action.

10. Field Duplicates (check if applicable):

- Field duplicate RPD ≤20% for waters, ≤35% for soils

n/a

Comments/Qualified Results: n/a

11. Results Verification and Overall Assessment:

- All results supported in the raw data Serial Dilution < 10% D for 750X IDL

Comments/Qualified Results: _____

Se @ 100% D, but results < 50X IDL.

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0203 Method Type: _____

Sample ID: W9F0203-01

Client ID: 90063

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924119
7440-70-2	Calcium	59700	ug/L			P	10.0	OPTIMA8	W924119
7439-95-4	Magnesium	11000	ug/L			P	8.9	OPTIMA8	W924119
7439-96-5	Manganese	73.0	ug/L			P	1.5	OPTIMA8	W924119
7439-98-7	Molybdenum	1.8	ug/L	B		P	0.31	OPTIMA8	W924119
7440-09-7	Potassium	626	ug/L			P	94.0	OPTIMA8	W924119
7782-49-2	Selenium	1.4	ug/L	B	D	MS	0.60	PE ICPMS DRC-E	166D
7440-23-5	Sodium	6410	ug/L			P	20.0	OPTIMA8	W924119
7440-62-2	Vanadium	0.55	ug/L	B		P	0.17	OPTIMA8	W924119
7440-66-6	Zinc	15400	ug/L			P	0.94	OPTIMA8	W924119

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

*JSI
8/19/09*

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0203 Method Type: _____

Sample ID: W9F0203-02

Client ID: 90064

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924119
7440-70-2	Calcium	89500	ug/L			P	10.0	OPTIMA8	W924119
7439-95-4	Magnesium	123000	ug/L			P	8.9	OPTIMA8	W924119
7439-96-5	Manganese	165	ug/L			P	1.5	OPTIMA8	W924119
7439-98-7	Molybdenum	2.4	ug/L	B		P	0.31	OPTIMA8	W924119
7440-09-7	Potassium	12000	ug/L			P	94.0	OPTIMA8	W924119
7782-49-2	Selenium	1.4	ug/L	B	D	MS	0.60	PE ICPMS DRC-E	166D
7440-23-5	Sodium	39900	ug/L			P	20.0	OPTIMA8	W924119
7440-62-2	Vanadium	4.3	ug/L	B		P	0.17	OPTIMA8	W924119
7440-66-6	Zinc	2.6	ug/L	B		P	0.94	OPTIMA8	W924119

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSV
8/19/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0203 Method Type: _____

Sample ID: W9F0203-03

Client ID: 90065

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924119
7440-70-2	Calcium	109000	ug/L			P	10.0	OPTIMA8	W924119
7439-95-4	Magnesium	117000	ug/L			P	8.9	OPTIMA8	W924119
7439-96-5	Manganese	188	ug/L			P	1.5	OPTIMA8	W924119
7439-98-7	Molybdenum	1.4	ug/L	B		P	0.31	OPTIMA8	W924119
7440-09-7	Potassium	11400	ug/L			P	94.0	OPTIMA8	W924119
7782-49-2	Selenium	0.70	ug/L	B	D	MS	0.60	PE ICPMS DRC-E	166D
7440-23-5	Sodium	31700	ug/L			P	20.0	OPTIMA8	W924119
7440-62-2	Vanadium	2.0	ug/L	B		P	0.17	OPTIMA8	W924119
7440-66-6	Zinc	2.7	ug/L	B		P	0.94	OPTIMA8	W924119

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

*Usl
8/19/09*



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA) 18300 NE Union Hill Road, Suite 200 Redmond, WA 98052-3333	Project Name: Monsanto Level 3 Work Order: W9F0203 Reported: 26-Jun-09 10:54
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Client Sample ID: **90063**

SVL Sample ID: **W9F0203-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 02-Jun-09 15:20
Received: 04-Jun-09
Sampled By: MC

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Metals (Total)

EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.00006		W924045	JAA	06/10/09 16:14	
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Metals (Total Recoverable--reportable as Total per 40 CFR 136)

EPA 200.7	Aluminum	< 0.080	mg/L	0.080	0.007		W924118	DT	06/10/09 09:14	<i>NO Qual.</i>
EPA 200.7	Barium	0.0248	mg/L	0.0020	0.0002		W924118	DT	06/10/09 09:15	
EPA 200.7	Beryllium	< 0.00200	mg/L	0.00200	0.00018		W924118	DT	06/10/09 09:14	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0005		W924118	DT	06/10/09 09:15	
EPA 200.7	Copper	< 0.010	mg/L	0.010	0.002		W924118	DT	06/10/09 09:15	
EPA 200.7	Iron	0.061	mg/L	0.060	0.010		W924118	DT	06/10/09 09:14	
EPA 200.7	Magnesium	11.1	mg/L	0.060	0.008		W924118	DT	06/10/09 09:13	
EPA 200.7	Manganese	0.0688	mg/L	0.0040	0.0006		W924118	DT	06/10/09 09:14	
EPA 200.7	Nickel	< 0.010	mg/L	0.010	0.001		W924118	DT	06/10/09 09:15	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0002		W924118	DT	06/10/09 09:15	
EPA 200.7	Sodium	6.62	mg/L	0.50	0.02		W924118	DT	06/10/09 09:13	
EPA 200.7	Zinc	15.2	mg/L	0.0100	0.0010		W924118	DT	06/10/09 09:15	
EPA 200.8	Antimony	< 0.00300	mg/L	0.00300	0.000275	2.5	W924116	KWH	06/15/09 08:50	
EPA 200.8	Arsenic	< 0.00300	mg/L	0.00300	0.00062	2.5	W924116	KWH	06/15/09 08:50	
EPA 200.8	Cadmium	< 0.000200	mg/L	0.000200	0.00003	2.5	W924116	KWH	06/15/09 08:50	
EPA 200.8	Selenium	< 0.00300	mg/L	0.00300	0.00030	2.5	W924116	KWH	06/15/09 08:50	
EPA 200.8	Thallium	< 0.00100	mg/L	0.00100	0.00003	2.5	W924116	KWH	06/15/09 08:50	

Classical Chemistry Parameters

EPA 350.1	Ammonia as N	0.050	mg/L	0.030	0.010		W924392	DKG	06/16/09 15:12	<i>HI WJ</i>
EPA 353.2	Nitrate/Nitrite as N	0.971	mg/L	0.0500	0.0016		W924396	DKG	06/15/09 18:32	
SM 2120B	Color	< 5.00	Color Units	5.00	5.00		W924105	SJK	06/09/09 09:40	
SM 2320B	Bicarbonate	222	mg/L	1.0	0.3		W924100	DKS	06/09/09 09:56	
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W924100	DKS	06/09/09 09:56	
SM 2320B	Total Alkalinity	222	mg/L	1.0	0.3		W924100	DKS	06/09/09 09:56	
SM 2540 C	Total Diss. Solids	245	mg/L	10	4		W924102	AGF	06/09/09 10:40	
SM 4500 H B	pH	7.68 @19.0°C	pH Units				W924100	DKS	06/09/09 09:56	
SM 4500-P-E	Phosphorus	0.02	mg/L	0.01	0.003		W924237	SM	06/15/09 12:47	

Anions by Ion Chromatography

EPA 300.0	Chloride	8.75	mg/L	0.200	0.050		W925010	EML	06/15/09 01:35	<i>I</i>
EPA 300.0	Fluoride	0.197	mg/L	0.100	0.023		W925010	EML	06/15/09 01:35	
EPA 300.0	Sulfate as SO4	6.43	mg/L	0.30	0.04		W925010	EML	06/15/09 01:35	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

J51 8/19/09



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA) 18300 NE Union Hill Road, Suite 200 Redmond, WA 98052-3333	Project Name: Monsanto Level 3 Work Order: W9F0203 Reported: 26-Jun-09 10:54
---	--

Client Sample ID: 90064

SVL Sample ID: W9F0203-02 (Ground Water)

Sample Report Page 1 of 1

Sampled: 02-Jun-09 16:30
Received: 04-Jun-09
Sampled By: MC

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.00006		W924045	JAA	06/10/09 16:16	
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Aluminum	< 0.080	mg/L	0.080	0.007		W924118	DT	06/10/09 09:20	
EPA 200.7	Barium	0.0780	mg/L	0.0020	0.0002		W924118	DT	06/10/09 09:21	
EPA 200.7	Beryllium	< 0.00200	mg/L	0.00200	0.00018		W924118	DT	06/10/09 09:20	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0005		W924118	DT	06/10/09 09:21	
EPA 200.7	Copper	< 0.010	mg/L	0.010	0.002		W924118	DT	06/10/09 09:21	
EPA 200.7	Iron	3.36	mg/L	0.060	0.010		W924118	DT	06/10/09 09:20	
EPA 200.7	Magnesium	122	mg/L	0.060	0.008		W924118	DT	06/10/09 09:20	
EPA 200.7	Manganese	0.153	mg/L	0.0040	0.0006		W924118	DT	06/10/09 09:20	
EPA 200.7	Nickel	0.012	mg/L	0.010	0.001		W924118	DT	06/10/09 09:21	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0002		W924118	DT	06/10/09 09:21	
EPA 200.7	Sodium	39.5	mg/L	0.50	0.02		W924118	DT	06/10/09 09:19	
EPA 200.7	Zinc	< 0.0100	mg/L	0.0100	0.0010		W924118	DT	06/10/09 09:21	
EPA 200.8	Antimony	< 0.00300	mg/L	0.00300	0.000275	2.5	W924116	KWH	06/15/09 08:51	
EPA 200.8	Arsenic	< 0.00300	mg/L	0.00300	0.00062	2.5	W924116	KWH	06/15/09 08:51	
EPA 200.8	Cadmium	< 0.000200	mg/L	0.000200	0.00003	2.5	W924116	KWH	06/15/09 08:51	
EPA 200.8	Selenium	< 0.00300	mg/L	0.00300	0.00030	2.5	W924116	KWH	06/15/09 08:51	
EPA 200.8	Thallium	< 0.00100	mg/L	0.00100	0.00003	2.5	W924116	KWH	06/15/09 08:51	
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.382	mg/L	0.030	0.010		W924392	DKG	06/16/09 15:17	
EPA 353.2	Nitrate/Nitrite as N	2.33	mg/L	0.0500	0.0016		W926045	DKG	06/22/09 17:00	
SM 2120B	Color	15.0	Color Units	5.00	5.00		W924105	SJK	06/09/09 09:40	
SM 2320B	Bicarbonate	746	mg/L	1.0	0.3		W924100	DKS	06/09/09 10:03	
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W924100	DKS	06/09/09 10:03	
SM 2320B	Total Alkalinity	746	mg/L	1.0	0.3		W924100	DKS	06/09/09 10:03	
SM 2540 C	Total Diss. Solids	762	mg/L	10	4		W924102	AGF	06/09/09 10:40	
SM 4500 H B	pH	6.63 @20.0°C	pH Units				W924100	DKS	06/09/09 10:03	
SM 4500-P-E	Phosphorus	0.21	mg/L	0.01	0.003		W924237	SM	06/15/09 12:47	
Anions by Ion Chromatography										
EPA 300.0	Chloride	23.3	mg/L	5.00	1.25	25	W925010	EML	06/15/09 02:07	D2
EPA 300.0	Fluoride	0.619	mg/L	0.100	0.023		W925010	EML	06/15/09 01:56	
EPA 300.0	Sulfate as SO4	44.0	mg/L	0.50	0.04		W925010	EML	06/15/09 01:56	

Handwritten notes: HI 4, W924118, W924116, W924105, W924100, W924102, W924237

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

Handwritten signature: JST 8/19/09



One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA) 18300 NE Union Hill Road, Suite 200 Redmond, WA 98052-3333	Project Name: Monsanto Level 3 Work Order: W9F0203 Reported: 26-Jun-09 10:54
---	--

Client Sample ID: 90065

SVL Sample ID: W9F0203-03 (Ground Water)

Sample Report Page 1 of 1

Sampled: 02-Jun-09 06:40
Received: 04-Jun-09
Sampled By: MC

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 245.1	Mercury	< 0.00020	mg/L	0.00020	0.00006		W924045	JAA	06/10/09 16:21	
Metals (Total Recoverable--reportable as Total per 40 CFR 136)										
EPA 200.7	Aluminum	< 0.080	mg/L	0.080	0.007		W924118	DT	06/10/09 09:26	
EPA 200.7	Barium	0.119	mg/L	0.0020	0.0002		W924118	DT	06/10/09 09:27	
EPA 200.7	Beryllium	< 0.00200	mg/L	0.00200	0.00018		W924118	DT	06/10/09 09:26	
EPA 200.7	Chromium	< 0.0060	mg/L	0.0060	0.0005		W924118	DT	06/10/09 09:27	
EPA 200.7	Copper	< 0.010	mg/L	0.010	0.002		W924118	DT	06/10/09 09:27	
EPA 200.7	Iron	0.118	mg/L	0.060	0.010		W924118	DT	06/10/09 09:26	
EPA 200.7	Magnesium	127	mg/L	0.060	0.008		W924118	DT	06/10/09 09:26	
EPA 200.7	Manganese	0.186	mg/L	0.0040	0.0006		W924118	DT	06/10/09 09:26	
EPA 200.7	Nickel	0.010	mg/L	0.010	0.001		W924118	DT	06/10/09 09:27	
EPA 200.7	Silver	< 0.0050	mg/L	0.0050	0.0002		W924118	DT	06/10/09 09:27	
EPA 200.7	Sodium	34.2	mg/L	0.50	0.02		W924118	DT	06/10/09 09:26	
EPA 200.7	Zinc	< 0.0100	mg/L	0.0100	0.0010		W924118	DT	06/10/09 09:27	
EPA 200.8	Antimony	< 0.00300	mg/L	0.00300	0.000275	2.5	W924116	KWH	06/15/09 08:53	
EPA 200.8	Arsenic	< 0.00300	mg/L	0.00300	0.00062	2.5	W924116	KWH	06/15/09 08:53	
EPA 200.8	Cadmium	< 0.000200	mg/L	0.000200	0.00003	2.5	W924116	KWH	06/15/09 08:53	
EPA 200.8	Selenium	< 0.00300	mg/L	0.00300	0.00030	2.5	W924116	KWH	06/15/09 08:53	
EPA 200.8	Thallium	< 0.00100	mg/L	0.00100	0.00003	2.5	W924116	KWH	06/15/09 08:53	
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.139	mg/L	0.030	0.010		W924392	DKG	06/16/09 15:18	J
EPA 353.2	Nitrate/Nitrite as N	1.32	mg/L	0.0500	0.0016		W926045	DKG	06/22/09 17:07	J
SM 2120B	Color	< 5.00	Color Units	5.00	5.00		W924105	SJK	06/09/09 09:40	H1 WJ
SM 2320B	Bicarbonate	804	mg/L	1.0	0.3		W924100	DKS	06/09/09 10:21	J
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W924100	DKS	06/09/09 10:21	WJ
SM 2320B	Total Alkalinity	804	mg/L	1.0	0.3		W924100	DKS	06/09/09 10:21	J
SM 2540 C	Total Diss. Solids	844	mg/L	10	4		W924102	AGF	06/09/09 10:40	
SM 4500 H B	pH	6.58 @19.0°C	pH Units				W924100	DKS	06/09/09 10:21	I
SM 4500-P-E	Phosphorus	0.13	mg/L	0.01	0.003		W924237	SM	06/15/09 12:47	
Anions by Ion Chromatography										
EPA 300.0	Chloride	21.9	mg/L	5.00	1.25	25	W925010	EML	06/15/09 02:28	D2 J
EPA 300.0	Fluoride	0.469	mg/L	0.100	0.023		W925010	EML	06/15/09 02:17	I
EPA 300.0	Sulfate as SO4	50.2	mg/L	7.50	0.90	25	W925010	EML	06/15/09 02:28	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

15/8/19/09

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
 Yes No

1. Data package completeness (check if present)

- Case Narrative
- Chain of Custody
- Sample Results
- ICV/CCV Results
- Blank Results
- ICP Interference Check Results
- Spike Recovery Results
- Duplicate Results
- LCS Results
- Standard Addition Results
- ICP Serial Dilution

- Instrument Detection Limits
- ICP Correction Factors
- ICP Linear Range
- Preparation Logs
- Analysis Run Logs
- ICP Raw Data
- GFAA Raw Data
- Mercury Raw Data
- Cyanide Raw Data
- Other (please specify) preservation info

Acceptable
 Absent
 Not required for data package requested.

Comments/Qualified Results: _____

- Cooler Temp = 5.4°C
- No bottle rec'd for NO₂/NO₃ + NH₄ but 2 for metals. Preserved 1 bottle upon receipt.
- Preservations ok. No qualifi. applied for < 7 day w/o preservative.

2. Holding times (check all that apply): _____

- ICP/GFAA metals analyzed in 6 months from collection
- Mercury analyzed in 28 days from collection
- Cyanide analyzed in 14 days from collection

anions, NO₂ NO₃ NH₄, TDS, Aik. HTOK

Comments/Qualified Results: _____

3. Calibrations (check all that apply): _____

- ICV/CCV %R for ICP/AA, 90%-110%, results acceptable
- ICV/CCV %R for ICP/AA, 75%-89% or 111%-125%, results estimated (J/UJ)
- ICV/CCV %R for ICP/AA, <75% or >125%, reject positive results (R)
- ICV/CCV %R for Mercury, 80%-120%, results acceptable
- ICV/CCV %R for Mercury, 65%-79% or 121%-135%, results estimated (J/UJ)
- ICV/CCV %R for Mercury, <65% or >135%, reject positive results (R)
- ICV/CCV %R for Cyanide, 85%-115%, results acceptable
- ICV/CCV %R for Cyanide, 70%-84% or 116%-130%, results estimated (J/UJ)
- ICV/CCV %R for Cyanide, <70% or >130%, reject positive results (R)
- CRDL Check Std %R 70-130% (50-150% Sb, Pb, Tl)

n/a

Comments/Qualified Results: _____

n/a - not provided

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

4. Blanks (check all that apply):

- Detects reported in ICB/CCB list: _____
- Detects in preparation blanks, list: see below
- Detects in field blanks, list: _____

Qualify as undetected (U) all sample concentrations $\leq 10X$ any associated blank concentrations and less than the PQL, or J+ for samples greater than the PQL.

Comments/Qualified Results: _____

MB \rightarrow TP @ 0.009 mg P/L \rightarrow no action, all results $> 10X$ blank contamination.

5. Duplicate Sample Analysis (check all that apply):

- Duplicate RPD $\leq 20\%$ for waters, $\leq 35\%$ for soils for results $> 5X$ CRDL
- Duplicate range within $\pm CRDL$ ($\pm 2xCRDL$ for soils) for results $< 5X$ CRDL

Comments/Qualified Results: _____

Ca, Mn %RPDs $> 20\%$ but results $< 5X$ CRDL

6. Laboratory Control Samples, Blank Spikes, MFS (check all that apply):

- LCS %R 80-120%, [50-150% for Ag, Sb]
- LCS % 50-79% or $> 120\%$, results $> IDL$ estimated (J)
- LCS %R 50-79% and results $< IDL$ estimated (UJ)
- LCS %R $< 50\%$ and all results rejected (R/UR)

Comments/Qualified Results: _____

TP SRM out of control high @ 122.0%R. J qual all TP results

7. Spike Recovery (check all that apply):

- Spike %R within 75%-125%
- Spike %R 30%-74% or $> 125\%$, results IDL estimated (J)
- Spike %R 30%-74%, results $< IDL$ estimated (UJ)
- Spike %R $< 30\%$, results $< IDL$ rejected (UR), results $> IDL$ estimated (J)
- Field blank used for spike analysis
- Post digest spk reqrd: %R 75-125% except Ag

Comments/Qualified Results: _____

TP MS result @ -48.0%R. ~~SRM ok~~. J qual parent sample only (90003)
Ca, Mg, Na: 4x spike amt $<$ sample result. (covered by LCS failure)
No %R. No action.

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: PB30LCS

LIMS ID: 09-12704

Matrix: Groundwater

Data Release Authorized: 

Reported: 06/10/09

QC Report No: PB30-Golder Associates Inc.

Project: MONSANTO

913-1101.605A

Date Sampled: NA

Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Cadmium	6010B	0.484	0.500	96.8%	
Calcium	6010B	9.41	10.0	94.1%	
Iron	6010B	1.87	2.00	93.5%	
Magnesium	6010B	9.79	10.0	97.9%	
Manganese	6010B	0.458	0.500	91.6%	
Molybdenum	6010B	0.469	0.500	93.8%	
Potassium	6010B	9.4	10.0	94.0%	
Selenium	7740	0.10	0.10	100%	
Sodium	6010B	9.5	10.0	95.0%	
Vanadium	6010B	0.489	0.500	97.8%	
Zinc	6010B	0.47	0.50	94.0%	

Reported in mg/L

N-Control limit not met

Control Limits: 80-120%

*Jsl
8/19/09*

SAMPLE RESULTS-CONVENTIONALS
 PB30-Golder Associates Inc.



Matrix: Groundwater
 Data Release Authorized *MB*
 Reported: 06/18/09

Project: MONSANTO
 Event: 913-1101.605A
 Date Sampled: 05/28/09
 Date Received: 06/04/09

Client ID: 90003
 ARI ID: 09-12703 PB30A

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	06/05/09 060509#1	SM 2320	mg/L CaCO3	1.0	375
Total Dissolved Solids	06/04/09 060409#1	EPA 160.1	mg/L	5.0	1,300
Chloride	06/10/09 061009#1	EPA 300.0	mg/L	5.0	83.7
Fluoride	06/05/09 060509#1	EPA 300.0	mg/L	1.0	1.8
N-Ammonia	06/10/09 061009#1	EPA 350.1M	mg-N/L	0.050	< 0.050 U
Nitrate + Nitrite	06/10/09 061009#1	EPA 353.2	mg-N/L	0.200	8.93
Total Phosphorus	06/17/09 061709#1	EPA 365.2	mg-P/L	0.008	0.792 J
Sulfate	06/10/09 061009#1	EPA 300.0	mg/L	50.0	440

RL Analytical reporting limit
 U Undetected at reported detection limit

Jsl
8/19/09

SAMPLE RESULTS-CONVENTIONALS
PB30-Golder Associates Inc.



Matrix: Groundwater
Data Release Authorized: *MB*
Reported: 06/18/09

Project: MONSANTO
Event: 913-1101.605A
Date Sampled: 05/29/09
Date Received: 06/04/09

Client ID: 90011
ARI ID: 09-12704 PB30B

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	06/05/09 060509#1	SM 2320	mg/L CaCO3	1.0	763
Total Dissolved Solids	06/04/09 060409#1	EPA 160.1	mg/L	5.0	1,310
Chloride	06/10/09 061009#1	EPA 300.0	mg/L	10.0	60.6
Fluoride	06/10/09 061009#1	EPA 300.0	mg/L	0.2	0.2
N-Ammonia	06/10/09 061009#1	EPA 350.1M	mg-N/L	0.010	0.042
Nitrate + Nitrite	06/10/09 061009#1	EPA 353.2	mg-N/L	0.100	4.89
Total Phosphorus	06/17/09 061709#1	EPA 365.2	mg-P/L	0.008	0.764 <i>J</i>
Sulfate	06/10/09 061009#1	EPA 300.0	mg/L	10.0	266

RL Analytical reporting limit
U Undetected at reported detection limit

Jst
8/19/09

SAMPLE RESULTS-CONVENTIONALS
PB30-Golder Associates Inc.



Matrix: Groundwater
Data Release Authorized: MB
Reported: 06/18/09

Project: MONSANTO
Event: 913-1101.605A
Date Sampled: 05/30/09
Date Received: 06/04/09

Client ID: 90032
ARI ID: 09-12705 PB30C

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	06/05/09 060509#1	SM 2320	mg/L CaCO3	1.0	402
Total Dissolved Solids	06/04/09 060409#1	EPA 160.1	mg/L	5.0	610
Chloride	06/10/09 061009#1	EPA 300.0	mg/L	2.0	33.6
Fluoride	06/10/09 061009#1	EPA 300.0	mg/L	0.1	0.2
N-Ammonia	06/10/09 061009#1	EPA 350.1M	mg-N/L	0.050	4.01
Nitrate + Nitrite	06/10/09 061009#1	EPA 353.2	mg-N/L	0.100	4.89
Total Phosphorus	06/17/09 061709#1	EPA 365.2	mg-P/L	0.040	0.950 J
Sulfate	06/10/09 061009#1	EPA 300.0	mg/L	2.0	82.7

RL Analytical reporting limit
U Undetected at reported detection limit

JSI
8/18/09

SAMPLE RESULTS-CONVENTIONALS
PB30-Golder Associates Inc.



Matrix: Groundwater
Data Release Authorized: MB
Reported: 06/18/09

Project: MONSANTO
Event: 913-1101.605A
Date Sampled: 06/01/09
Date Received: 06/04/09

Client ID: 90056
ARI ID: 09-12706 PB30D

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	06/05/09 060509#1	SM 2320	mg/L CaCO3	1.0	404
Total Dissolved Solids	06/04/09 060409#1	EPA 160.1	mg/L	5.0	990
Chloride	06/11/09 061109#1	EPA 300.0	mg/L	2.0	19.5
Fluoride	06/10/09 061009#1	EPA 300.0	mg/L	0.1	0.2
N-Ammonia	06/10/09 061009#1	EPA 350.1M	mg-N/L	0.010	0.017
Nitrate + Nitrite	06/10/09 061009#1	EPA 353.2	mg-N/L	0.100	3.89
Total Phosphorus	06/17/09 061709#1	EPA 365.2	mg-P/L	0.008	0.566 J
Sulfate	06/05/09 060509#1	EPA 300.0	mg/L	1.0	45.5

RL Analytical reporting limit
U Undetected at reported detection limit

JSL
8/19/09

SAMPLE RESULTS-CONVENTIONALS
PB30-Golder Associates Inc.



Matrix: Groundwater
Data Release Authorized: MB
Reported: 06/18/09

Project: MONSANTO
Event: 913-1101.605A
Date Sampled: 06/02/09
Date Received: 06/04/09

Client ID: 90070
ARI ID: 09-12707 PB30E

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	06/05/09 060509#1	SM 2320	mg/L CaCO3	1.0	396
Total Dissolved Solids	06/04/09 060409#1	EPA 160.1	mg/L	5.0	1,180
Chloride	06/10/09 061009#1	EPA 300.0	mg/L	5.0	77.9
Fluoride	06/05/09 060509#1	EPA 300.0	mg/L	1.0	2.8
N-Ammonia	06/10/09 061009#1	EPA 350.1M	mg-N/L	0.050	< 0.050 U
Nitrate + Nitrite	06/10/09 061009#1	EPA 353.2	mg-N/L	0.100	6.81
Total Phosphorus	06/17/09 061709#1	EPA 365.2	mg-P/L	0.008	0.760 J
Sulfate	06/10/09 061009#1	EPA 300.0	mg/L	50.0	372

RL Analytical reporting limit
U Undetected at reported detection limit

JSL
8/19/09

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS
Page 1 of 1

Sample ID: 90003
SAMPLE

Lab Sample ID: PB30A
LIMS ID: 09-12703
Matrix: Groundwater
Data Release Authorized
Reported: 06/10/09

QC Report No: PB30-Golder Associates Inc.
Project: MONSANTO
913-1101.605A
Date Sampled: 05/28/09
Date Received: 06/04/09



Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	06/04/09	6010B	06/08/09	7440-43-9	Cadmium	0.002	0.003	
3010A	06/04/09	6010B	06/08/09	7440-70-2	Calcium	0.05	169	
3010A	06/04/09	6010B	06/08/09	7439-89-6	Iron	0.05	0.05	U
3010A	06/04/09	6010B	06/08/09	7439-95-4	Magnesium	0.05	106	
3010A	06/04/09	6010B	06/08/09	7439-96-5	Manganese	0.001	0.002	
3010A	06/04/09	6010B	06/08/09	7439-98-7	Molybdenum	0.005	0.044	
3010A	06/04/09	6010B	06/08/09	7440-09-7	Potassium	0.5	15.4	
7740	06/04/09	7740	06/09/09	7782-49-2	Selenium	0.02	0.12	
3010A	06/04/09	6010B	06/08/09	7440-23-5	Sodium	0.5	65.5	
3010A	06/04/09	6010B	06/08/09	7440-62-2	Vanadium	0.003	0.006	
3010A	06/04/09	6010B	06/08/09	7440-66-6	Zinc	0.01	0.08	

U-Analyte undetected at given RL
RL-Reporting Limit

JSI
8/19/09

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: 90011

SAMPLE

Lab Sample ID: PB30B

LIMS ID: 09-12704

Matrix: Groundwater

Data Release Authorized 

Reported: 06/10/09

QC Report No: PB30-Golder Associates Inc.

Project: MONSANTO

913-1101.605A

Date Sampled: 05/29/09

Date Received: 06/04/09

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	06/04/09	6010B	06/08/09	7440-43-9	Cadmium	0.002	0.002	U
3010A	06/04/09	6010B	06/08/09	7440-70-2	Calcium	0.05	210	
3010A	06/04/09	6010B	06/08/09	7439-89-6	Iron	0.05	0.05	U
3010A	06/04/09	6010B	06/08/09	7439-95-4	Magnesium	0.05	129	
3010A	06/04/09	6010B	06/08/09	7439-96-5	Manganese	0.001	0.006	
3010A	06/04/09	6010B	06/08/09	7439-98-7	Molybdenum	0.005	0.007	
3010A	06/04/09	6010B	06/08/09	7440-09-7	Potassium	0.5	9.4	
7740	06/04/09	7740	06/09/09	7782-49-2	Selenium	0.02	0.14	
3010A	06/04/09	6010B	06/08/09	7440-23-5	Sodium	0.5	47.4	
3010A	06/04/09	6010B	06/08/09	7440-62-2	Vanadium	0.003	0.003	U
3010A	06/04/09	6010B	06/08/09	7440-66-6	Zinc	0.01	0.01	U

U-Analyte undetected at given RL
RL-Reporting Limit

*JSI
8/19/09*



INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: 90032
SAMPLE

Lab Sample ID: PB30C
LIMS ID: 09-12705
Matrix: Groundwater
Data Release Authorized
Reported: 06/10/09

QC Report No: PB30-Golder Associates Inc.
Project: MONSANTO
913-1101.605A
Date Sampled: 05/30/09
Date Received: 06/04/09

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	06/04/09	6010B	06/08/09	7440-43-9	Cadmium	0.002	0.002	U
3010A	06/04/09	6010B	06/08/09	7440-70-2	Calcium	0.05	107	
3010A	06/04/09	6010B	06/08/09	7439-89-6	Iron	0.05	0.05	U
3010A	06/04/09	6010B	06/08/09	7439-95-4	Magnesium	0.05	43.9	
3010A	06/04/09	6010B	06/08/09	7439-96-5	Manganese	0.001	0.020	
3010A	06/04/09	6010B	06/08/09	7439-98-7	Molybdenum	0.005	0.184	
3010A	06/04/09	6010B	06/08/09	7440-09-7	Potassium	0.5	4.7	
7740	06/04/09	7740	06/09/09	7782-49-2	Selenium	0.002	0.008	
3010A	06/04/09	6010B	06/08/09	7440-23-5	Sodium	0.5	34.6	
3010A	06/04/09	6010B	06/08/09	7440-62-2	Vanadium	0.003	0.414	
3010A	06/04/09	6010B	06/08/09	7440-66-6	Zinc	0.01	0.01	U

U-Analyte undetected at given RL
RL-Reporting Limit

JSI
8/14/09

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS

Page 1 of 1

Sample ID: 90056

SAMPLE

Lab Sample ID: PB30D

LIMS ID: 09-12706

Matrix: Groundwater

Data Release Authorized: *[Signature]*

Reported: 06/10/09

QC Report No: PB30-Golder Associates Inc.

Project: MONSANTO

913-1101.605A

Date Sampled: 06/01/09

Date Received: 06/04/09

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	06/04/09	6010B	06/08/09	7440-43-9	Cadmium	0.002	0.002	U
3010A	06/04/09	6010B	06/08/09	7440-70-2	Calcium	0.05	107	
3010A	06/04/09	6010B	06/08/09	7439-89-6	Iron	0.05	0.05	U
3010A	06/04/09	6010B	06/08/09	7439-95-4	Magnesium	0.05	38.6	
3010A	06/04/09	6010B	06/08/09	7439-96-5	Manganese	0.001	0.003	
3010A	06/04/09	6010B	06/08/09	7439-98-7	Molybdenum	0.005	0.043	
3010A	06/04/09	6010B	06/08/09	7440-09-7	Potassium	0.5	2.3	
7740	06/04/09	7740	06/09/09	7782-49-2	Selenium	0.002	0.004	
3010A	06/04/09	6010B	06/08/09	7440-23-5	Sodium	0.5	16.0	
3010A	06/04/09	6010B	06/08/09	7440-62-2	Vanadium	0.003	0.406	
3010A	06/04/09	6010B	06/08/09	7440-66-6	Zinc	0.01	0.01	

U-Analyte undetected at given RL

RL-Reporting Limit

*Jsl
8/19/09*

INORGANICS ANALYSIS DATA SHEET

TOTAL METALS
Page 1 of 1

Sample ID: 90070
SAMPLE

Lab Sample ID: PB30E
LIMS ID: 09-12707
Matrix: Groundwater
Data Release Authorized: 
Reported: 06/10/09

QC Report No: PB30-Golder Associates Inc.
Project: MONSANTO
913-1101.605A
Date Sampled: 06/02/09
Date Received: 06/04/09

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/L	Q
3010A	06/04/09	6010B	06/08/09	7440-43-9	Cadmium	0.002	0.002	U
3010A	06/04/09	6010B	06/08/09	7440-70-2	Calcium	0.05	144	
3010A	06/04/09	6010B	06/08/09	7439-89-6	Iron	0.05	0.07	
3010A	06/04/09	6010B	06/08/09	7439-95-4	Magnesium	0.05	98.3	
3010A	06/04/09	6010B	06/08/09	7439-96-5	Manganese	0.001	0.001	
3010A	06/04/09	6010B	06/08/09	7439-98-7	Molybdenum	0.005	0.078	
3010A	06/04/09	6010B	06/08/09	7440-09-7	Potassium	0.5	18.4	
7740	06/04/09	7740	06/09/09	7782-49-2	Selenium	0.02	0.17	
3010A	06/04/09	6010B	06/08/09	7440-23-5	Sodium	0.5	67.9	
3010A	06/04/09	6010B	06/08/09	7440-62-2	Vanadium	0.003	0.006	
3010A	06/04/09	6010B	06/08/09	7440-66-6	Zinc	0.01	0.06	

U-Analyte undetected at given RL
RL-Reporting Limit

Jst
8/19/09

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

PROJECT: 9131101.605A	SITE: Monsanto, Soda Springs, Idaho
LABORATORY: SVL Analytical, Inc.	SDG: W9F0142
SAMPLES: 90066, (90067) ^{blank} , 90068, (90069) ^{split} , (90071, 90072) ^{Field dup.} , 90073, 90074, 90075, 90076, 90077 (11 samples)	MATRIX: Groundwater, Sfc Water, Effluent.
COLLECTION DATE: 6/2/2009, 6/3/2009	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	Alkalinity ICP/AES	ICP/MS	As/Se	TDS/P Cyanide	Cl/F/SO4 Anions	NO3/NO2/NH4 Other
1. Data completeness (1,2)	X	0	0	X	X	X
2. Holding times	0	0	0	0	0	0
3. Calibration	0	0	0	0	0	6
4. Blanks (4)	0	0	0	0	0	0
5. Duplicate PRD/Lab Precision	0	0	0	0	0	0
6. LCS, Blank Spike, MFS	0	0	0	0	0	0
7. Matrix Spike, MSD (3)	0	0	0	0	0	0
8. GFAA, MAS, Serial Dil.	n/a					
9. Detection Limits, Other QC	0	0	0	0	0	0
10. Field duplicates (5)	X	0	0	X	X	X
11. Data verification, Overall Summary	0	0	0	0	0	0

0 = Data had no problems
 X = Data qualified due to minor problems [typically estimated data (J or UJ)]
 M = Data qualified due to major problems [typically more than 50% qualified (J/UJ)]
 Z = Data unacceptable [typically data rejected (R)]

Comments/qualified results:

- ① Cooler temps: 8.1°C, 9.2°C [qual J/UJ all non-metals] ✓
- ② pH > 2 for NO₂/NO₃^{+Nif3} on #90076 [qual J/UJ] ✓
- ③ Field blank used for spike analysis on Se, Cl, F, SO₄ → no action other than to note
- ④ Detections in Grandfos blank (Cl, P, Ca, Mg) → no action other than to note.
- ⑤ Field Dup %RPDs > 20% for Fluoride, Bicarb, Alkalinity + TDS (likely due to acidified sample) ~~[qual J/UJ]~~ for 90071 + 90072 for above analytes No qualif. applied due to out of limit RPD assoc. w/ Field Duplicates. *[Signature]*

Validated by: *[Signature]* Date: 8/18/2009
 Reviewed by: *[Signature]* Date: Aug. 31, 2009

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
 Yes No

1. Data package completeness (check if present)

- Case Narrative
- Chain of Custody
- Sample Results
- ICV/CCV Results
- Blank Results
- ICP Interference Check Results
- Spike Recovery Results
- Duplicate Results
- LCS Results
- Standard Addition Results
- ICP Serial Dilution

- Instrument Detection Limits
- ICP Correction Factors
- ICP Linear Range
- Preparation Logs
- Analysis Run Logs
- ICP Raw Data
- GFAA Raw Data
- Mercury Raw Data
- Cyanide Raw Data
- Other (please specify) _____

Acceptable
 Absent
 Not required for data package requested.

Comments/Qualified Results:

Cooler Temps: 8.1°C, 9.2°C [qual J/U] all non-metals results for all samples.
 pH 7.2 for NO₂/NO₃ on 90076 [qual J]
 +NH₃

2. Holding times (check all that apply):

- ICP/GFAA metals analyzed in 6 months from collection
- Mercury analyzed in 28 days from collection
- Cyanide analyzed in 14 days from collection

anions, NO₂/NO₃, NH₄ w/in hold.

Comments/Qualified Results:

3. Calibrations (check all that apply):

- ICV/CCV %R for ICP/AA, 90%-110%, results acceptable
- ICV/CCV %R for ICP/AA, 75%-89% or 111%-125%, results estimated (J/U)
- ICV/CCV %R for ICP/AA, <75% or >125%, reject positive results (R)
- ICV/CCV %R for Mercury, 80%-120%, results acceptable
- ICV/CCV %R for Mercury, 65%-79% or 121%-135%, results estimated (J/U)
- ICV/CCV %R for Mercury, <65% or >135%, reject positive results (R)
- ICV/CCV %R for Cyanide, 85%-115%, results acceptable
- ICV/CCV %R for Cyanide, 70%-84% or 116%-130%, results estimated (J/U)
- ICV/CCV %R for Cyanide, <70% or >130%, reject positive results (R)
- CRDL Check Std %R 70-130% (50-150% Sb, Pb, Tl)

Comments/Qualified Results:

Zn CR: jsl

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

4. Blanks (check all that apply):

- Detects reported in ICB/CCB list: see below.
- Detects in preparation blanks, list: _____
- Detects in field blanks, list: Cl @ 0.32 mg/L, P @ 0.05 mg/L, Ca @ 122 µg/L, Mg @ 68.6 µg/L. No action other than to note.

Qualify as undetected (U) all sample concentrations $\leq 10X$ any associated blank concentrations and less than the PQL, or J+ for samples greater than the PQL.

Comments/Qualified Results: _____

CCB : K @ -86.131 J µg/L for W924186 on 6/14/09 @ 13:13 - no action all results > 10x blank.

5. Duplicate Sample Analysis (check all that apply):

- Duplicate RPD $\leq 20\%$ for waters, $\leq 35\%$ for soils for results $> 5X$ CRDL
- Duplicate range within $\pm CRDL$ ($\pm 2x CRDL$ for soils) for results $< 5X$ CRDL

Comments/Qualified Results: _____

No RPDs calculated for Ammonia, Alkalinity, Bicarb + Carb, Fluoride, and Sulfate since results were $< 5x$ CRDL.

6. Laboratory Control Samples, Blank Spikes, MFS (check all that apply):

- LCS %R 80-120%, [50-150% for Ag, Sb]
- LCS % 50-79% or $> 120\%$, results $> IDL$ estimated (J)
- LCS %R 50-79% and results $< IDL$ estimated (UJ)
- LCS %R $< 50\%$ and all results rejected (R/UR)

Comments/Qualified Results: _____

7. Spike Recovery (check all that apply):

- Spike %R within 75%-125%
- Spike %R 30%-74% or $> 125\%$, results IDL estimated (J)
- Spike %R 30%-74%, results $< IDL$ estimated (UJ)
- Spike %R $< 30\%$, results $< IDL$ rejected (UR), results $> IDL$ estimated (J)
- Field blank used for spike analysis for Se, F, Cl, SO₄
- Post digest spk reqrd: %R 75-125% except Ag

Comments/Qualified Results: Equip Blank used for MS/MSD for Se, F, Cl, SO₄

- No MS %R calculated for NO₂ since 4x spike amt is $<$ sample result.
- Cl flagged as out of control low @ 86.67 OR. OK per limits of 75-125%.

No action other than to note (samples are blind)

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

8. GFAA¹ Performance (check all that apply):.....

- Duplicate injection RSD <20%
- Duplicate injection RSD >20%, results >CRDL estimated (J)
- Analytical spike %R 85%-115%
- Analytical spike %R 40%-85%, results >IDL estimated (J)
- Analytical spike %R 10%-40%, results <IDL estimated (U)
- Analytical spike %R <10%, results <IDL rejected (R)

n/a

n/a

Comments/Qualified Results: _____

9. Detection Limits, Other QC: _____

Comments/Qualified Results: _____

except as noted in JDB # W9F0136

10. Field Duplicates (check if applicable): _____

Field duplicate RPD ≤20% for waters, ≤35% for soils *except:*

Comments/Qualified Results: _____

- Samples 90071/90072: -Field Dup results 720% and > 5X CRDL for Fluoride, Bicarbonate, Alkalinity, TDS.
- all other QC in control, other Field Dup results ok, + other analytes ok.
- calibration, dilutions checked - ok ✓
- conductivity: 90071 → 10320 μmhos/cm, 90072 → 1876 μmhos/cm.
- acidity was tested on 90071 - perhaps related to odd sample results?
↳ (pH < 2 perhaps bottles preserved?)

qual J/UJ/samples
90071/90072
for above analytes

11. Results Verification and Overall Assessment: _____

All results supported in the raw data *Serial Dilution %D < 10% for results 750X MDL*

Comments/Qualified Results: _____



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Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Holder Associates (WA) 8300 NE Union Hill Road, Suite 200 Redmond, WA 98052-3333 Project Name: Monsanto Level 3 Work Order: W9F0142 Reported: 24-Jun-09 10:08

Client Sample ID: 90066 SVL Sample ID: W9F0142-02 (Ground Water) Sample Report Page 1 of 1 Sampled: 02-Jun-09 17:30 Received: 04-Jun-09 Sampled By: MK

Table with columns: Method, Analyte, Result, Units, RL, MDL, Dilution, Batch, Analyst, Analyzed, Notes. Includes sections for Classical Chemistry Parameters and Anions by Ion Chromatography.

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray Technical Director

JSI 6/18/09



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Bolder Associates (WA)
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Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90067**

FIELD BLANK

Sampled: 02-Jun-09 18:30

SVL Sample ID: **W9F0142-03 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
A 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	05/19/09 16:13	UJ
A 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925196	DKG	06/18/09 18:03	
A 2320B	Bicarbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	05/10/09 13:44	
A 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:44	
A 2320B	Total Alkalinity	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:44	
A 2540 C	Total Diss. Solids	< 10	mg/L	10	4		W924091	AGF	06/09/09 08:15	
A 4500-P-E	Phosphorus	0.05	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	J
Anions by Ion Chromatography										
A 300.0	Chloride	0.320	mg/L	0.200	0.050		W925115	EML	06/17/09 14:17	J
A 300.0	Fluoride	< 0.100	mg/L	0.100	0.023		W925115	EML	06/17/09 14:17	UJ
A 300.0	Sulfate as SO4	< 0.30	mg/L	0.30	0.04		W925115	EML	06/17/09 14:17	UJ

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JS/
8/18/09



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Golder Associates (WA)
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Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90068**

Sampled: 02-Jun-09 19:10

SVL Sample ID: **W9F0142-04 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:14	WJ
PA 353.2	Nitrate/Nitrite as N	6.10	mg/L	0.500	0.0160	10	W925196	DKG	06/18/09 17:16	D2 J
√ 2320B	Bicarbonate	413	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:47	J
√ 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:47	WJ
√ 2320B	Total Alkalinity	413	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:47	J
√ 2540 C	Total Diss. Solids	1140	mg/L	10	4		W924091	AGF	06/09/09 08:15	J
√ 4500-P-E	Phosphorus	0.16	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	L
Anions by Ion Chromatography										
PA 300.0	Chloride	77.8	mg/L	5.00	1.25	25	W925115	EML	06/17/09 15:09	D2 J
PA 300.0	Fluoride	3.65	mg/L	0.100	0.023		W925115	EML	06/17/09 14:58	L
PA 300.0	Sulfate as SO4	346	mg/L	7.50	0.90	25	W925115	EML	06/17/09 15:09	D2 L

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
8/18/09



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Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90069**

SVL Sample ID: **W9F0142-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 02-Jun-09 19:40

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:15	WJ
PA 353.2	Nitrate/Nitrite as N	7.35	mg/L	0.500	0.0160	10	W925196	DKG	06/18/09 17:17	D2 J
VI 2320B	Bicarbonate	388	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:58	J
VI 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:58	WJ
VI 2320B	Total Alkalinity	388	mg/L	1.0	0.3		W923314	DKS	06/10/09 13:58	J
VI 2540 C	Total Diss. Solids	1150	mg/L	10	4		W924091	AGF	06/09/09 08:15	J
VI 4500-P-E	Phosphorus	0.22	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	L
Anions by Ion Chromatography										
PA 300.0	Chloride	82.3	mg/L	5.00	1.25	25	W925115	EML	06/17/09 15:30	D2 J
PA 300.0	Fluoride	4.21	mg/L	0.100	0.023		W925115	EML	06/17/09 15:19	J
PA 300.0	Sulfate as SO4	377	mg/L	7.50	0.90	25	W925115	EML	06/17/09 15:30	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
8/18/09



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Golder Associates (WA)
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Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90071**

Sampled: 02-Jun-09 20:10

SVL Sample ID: **W9F0142-06 (Ground Water)**

Received: 04-Jun-09

Sample Report Page 1 of 1

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
A 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:17	UJ
A 353.2	Nitrate/Nitrite as N	3.09	mg/L	0.0500	0.0016		W925196	DKG	06/18/09 18:04	J
A 2320B	Acidity	1000	mg/L	5.0	1.5		W923314	DKS	06/10/09 14:08	J
A 2320B	Bicarbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:08	UJ
A 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:08	J
A 2320B	Total Alkalinity	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:08	J
A 2540 C	Total Diss. Solids	2590	mg/L	10	4		W924091	AGF	06/09/09 08:15	UJ
A 4500-P-E	Phosphorus	0.13	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	J
Anions by Ion Chromatography										
A 300.0	Chloride	44.8	mg/L	1.00	0.250	5	W925115	EML	06/17/09 16:32	D2 J
A 300.0	Fluoride	1.48	mg/L	0.500	0.115	5	W925115	EML	06/17/09 16:32	D2 J
A 300.0	Sulfate as SO4	161	mg/L	7.50	0.90	25	W925115	EML	06/18/09 06:19	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSP
8/18/09



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Project Name: Monsanto Level 3
Work Order: W9F0142
Reported: 24-Jun-09 10:08

Client Sample ID: 90072 **FIELD DUPLICATE of 90071**
SVL Sample ID: W9F0142-07 (Ground Water) Sample Report Page 1 of 1

Sampled: 02-Jun-09 20:10
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
1A 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:18	WJ
1A 353.2	Nitrate/Nitrite as N	3.12	mg/L	0.0500	0.0016		W925196	DKG	06/18/09 18:05	J
1 2320B	~ Bicarbonate	833	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:10	J
1 2320B	~ Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:10	WJ
1 2320B	~ Total Alkalinity	833	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:10	J
1 2540 C	~ Total Diss. Solids	1120	mg/L	10	4		W924091	AGF	06/09/09 08:15	J
1 4500-P-E	Phosphorus	0.13	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	L
Anions by Ion Chromatography										
1A 300.0	Chloride	48.1	mg/L	2.00	0.500	10	W925115	EML	06/17/09 17:13	D2 WJ
1A 300.0	Fluoride	0.714	mg/L	0.100	0.023		W925115	EML	06/17/09 17:02	
1A 300.0	Sulfate as SO4	186	mg/L	3.00	0.36	10	W925115	EML	06/17/09 17:13	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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6/18/09



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Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: **24-Jun-09 10:08**

Client Sample ID: **90073**

Sampled: 03-Jun-09 07:15

SVL Sample ID: **W9F0142-08 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
A 350.1	Ammonia as N	0.032	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:19	J
A 353.2	Nitrate/Nitrite as N	4.48	mg/L	0.0500	0.0016		W925196	DKG	06/18/09 18:06	J
A 2320B	Bicarbonate	448	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:28	J
A 2320B	Carbonate	2.6	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:28	J
A 2320B	Total Alkalinity	451	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:28	J
A 2540 C	Total Diss. Solids	892	mg/L	10	4		W924091	AGF	06/09/09 08:15	J
A 4500-P-E	Phosphorus	1.05	mg/L	0.02	0.005	2	W925271	SM	06/18/09 14:55	D2
Anions by Ion Chromatography										
A 300.0	Chloride	106	mg/L	5.00	1.25	25	W925115	EML	06/17/09 17:43	D2 J
A 300.0	Fluoride	0.745	mg/L	0.100	0.023		W925115	EML	06/17/09 17:33	J
A 300.0	Sulfate as SO4	169	mg/L	7.50	0.90	25	W925115	EML	06/17/09 17:43	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSP
6/18/09



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ne Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90074**

Sampled: 03-Jun-09 07:45

SVL Sample ID: **W9F0142-09 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:21	
PA 353.2	Nitrate/Nitrite as N	6.28	mg/L	0.500	0.0160	10	W925196	DKG	06/18/09 17:25	D2
VI 2320B	Bicarbonate	609	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:40	
VI 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:40	
VI 2320B	Total Alkalinity	609	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:40	
VI 2540 C	Total Diss. Solids	1230	mg/L	10	4		W924091	AGF	06/09/09 08:15	
VI 4500-P-E	Phosphorus	0.26	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	
Anions by Ion Chromatography										
PA 300.0	Chloride	128	mg/L	10.0	2.50	50	W925115	EML	06/17/09 18:53	D2
PA 300.0	Fluoride	2.04	mg/L	0.100	0.023		W925115	EML	06/17/09 17:54	
PA 300.0	Sulfate as SO4	270	mg/L	15.0	1.80	50	W925115	EML	06/17/09 18:53	D2

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Kirby Gray
Technical Director

JSP
8/18/09



One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90075**

SVL Sample ID: **W9F0142-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 03-Jun-09 08:00
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:27	
PA 353.2	Nitrate/Nitrite as N	8.69	mg/L	0.500	0.0160	10	W925196	DKG	06/18/09 17:26	D2
M 2320B	Bicarbonate	445	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:58	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:58	
M 2320B	Total Alkalinity	445	mg/L	1.0	0.3		W923314	DKS	06/10/09 14:58	
M 2540 C	Total Diss. Solids	1090	mg/L	10	4		W924091	AGF	06/09/09 08:15	
M 4500-P-E	Phosphorus	0.18	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	
Anions by Ion Chromatography										
PA 300.0	Chloride	73.2	mg/L	5.00	1.25	25	W925115	EML	06/17/09 19:13	D2
PA 300.0	Fluoride	2.38	mg/L	0.100	0.023		W925115	EML	06/17/09 19:03	
PA 300.0	Sulfate as SO4	313	mg/L	7.50	0.90	25	W925115	EML	06/17/09 19:13	D2

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Kirby Gray
Technical Director

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8/18/09



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19000 Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90076**

SVL Sample ID: **W9F0142-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 03-Jun-09 08:25

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	1.42	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:29	
PA 353.2	Nitrate/Nitrite as N	3.92	mg/L	0.0500	0.0016		W925196	DKG	06/18/09 18:32	Q13
M 2320B	Bicarbonate	401	mg/L	1.0	0.3		W923314	DKS	06/10/09 15:10	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 15:10	
M 2320B	Total Alkalinity	401	mg/L	1.0	0.3		W923314	DKS	06/10/09 15:10	
M 2540 C	Total Diss. Solids	597	mg/L	10	4		W924091	AGF	06/09/09 08:15	
M 4500-P-E	Phosphorus	0.04	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	
Anions by Ion Chromatography										
PA 300.0	Chloride	28.0	mg/L	5.00	1.25	25	W925115	EML	06/17/09 19:34	D2
PA 300.0	Fluoride	0.387	mg/L	0.100	0.023		W925115	EML	06/17/09 19:24	
PA 300.0	Sulfate as SO4	74.6	mg/L	7.50	0.90	25	W925115	EML	06/17/09 19:34	D2

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Kirby Gray
Technical Director

JSD
8/18/09



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ne Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0142**
Reported: 24-Jun-09 10:08

Client Sample ID: **90077**

Sampled: 03-Jun-09 08:50

SVL Sample ID: **W9F0142-12 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925140	DKG	06/19/09 16:30	
PA 353.2	Nitrate/Nitrite as N	8.95	mg/L	0.500	0.0160	10	W925196	DKG	06/18/09 18:07	D2
✓ 2320B	Bicarbonate	414	mg/L	1.0	0.3		W923314	DKS	06/10/09 15:17	
✓ 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923314	DKS	06/10/09 15:17	
✓ 2320B	Total Alkalinity	414	mg/L	1.0	0.3		W923314	DKS	06/10/09 15:17	
✓ 2540 C	Total Diss. Solids	771	mg/L	10	4		W924091	AGF	06/09/09 08:15	
✓ 4500-P-E	Phosphorus	0.13	mg/L	0.01	0.003		W925271	SM	06/18/09 14:55	
Anions by Ion Chromatography										
PA 300.0	Chloride	45.1	mg/L	1.00	0.250	5	W925115	EML	06/17/09 19:54	D2
PA 300.0	Fluoride	0.620	mg/L	0.100	0.023		W925115	EML	06/17/09 19:44	
PA 300.0	Sulfate as SO4	151	mg/L	1.50	0.18	5	W925115	EML	06/17/09 19:54	D2

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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

J&P
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-02 Client ID: 90066
Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____
Matrix: WATER Date Received: 06/04/2009 Level: LOW
% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	150000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	105000	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	J		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	71.8	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	20500	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	244	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	75100	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	3.5	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	2.2	ug/L	J		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-03

Client ID: 90067

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	122	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	68.6	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	2.3	ug/L	U		P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	69.0	ug/L	U		P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	0.60	ug/L	U	D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	492	ug/L	J		P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	0.50	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	1.9	ug/L	U		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JS/ 8/18/07

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-04

Client ID: 90068

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	139000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	96800	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	48.7	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	16800	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	199	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	68500	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	3.1	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	18.4	ug/L			P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-05

Client ID: 90069

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	144000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	97300	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	3.4	ug/L	J		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	78.9	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	19200	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	136	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	69100	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	4.3	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	62.7	ug/L			P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-06

Client ID: 90071

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	197000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	121000	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	2.3	ug/L	U		P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	9630	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	30.9	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	38900	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	1.2	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	1.9	ug/L	U		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-07 Client ID: 90072

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	199000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	123000	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	2.3	ug/L	U		P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	9630	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	31.3	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	38800	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	1.0	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	1.9	ug/L	U		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-08

Client ID: 90073

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	9.8	ug/L			P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	126000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	61800	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	38.5	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	7730	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	24.8	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	95100	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	39.4	ug/L			P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	22.8	ug/L			P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-09

Client ID: 90074

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	128000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	131000	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	2.4	ug/L	J		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	23.9	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	14500	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	158	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	105000	ug/l.			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	5.2	ug/L			P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	1.9	ug/L	U		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-10

Client ID: 90075

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	128000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	104000	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	24.8	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	18300	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	172	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	65900	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	5.7	ug/L			P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	1.9	ug/L	U		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Jst
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-11

Client ID: 90076

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	101000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	47200	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	181	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	5030	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	2.4	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	37800	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	2.2	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	1.9	ug/L	U		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JS/
3/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0142 Method Type: _____

Sample ID: W9F0142-12

Client ID: 90077

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA7	W924186
7440-70-2	Calcium	116000	ug/L			P	18.0	OPTIMA7	W924186
7439-95-4	Magnesium	69300	ug/L			P	15.0	OPTIMA7	W924186
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA7	W924186
7439-98-7	Molybdenum	102	ug/L			P	2.3	OPTIMA7	W924186
7440-09-7	Potassium	6760	ug/L			P	69.0	OPTIMA7	W924186
7782-49-2	Selenium	14.2	ug/L		D	MS	0.60	PE ICPMS DRC-E	173E
7440-23-5	Sodium	37700	ug/L			P	41.0	OPTIMA7	W924186
7440-62-2	Vanadium	4.5	ug/L	J		P	0.48	OPTIMA7	W924186
7440-66-6	Zinc	5.5	ug/L	J		P	1.9	OPTIMA7	W924186

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/18/09

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

PROJECT: 9131101.605 A	Spilt to PR2	SITE: Monsanto, Soda Springs, Idaho
LABORATORY: SVL Analytical, Inc.	Field Dup	SDG: W9F0136
SAMPLES: 90001, 90002, 90004, 90005, 90006, 90007, 90008,		MATRIX: Groundwater
90009, 90010, 90011, 90013, 90014, 90015, 90016, 90017, 90018, 90019,		
90020, 90021, 90022		Field Dup (20 Samples)
COLLECTION DATE: 5/28/2009, 5/29/2009		

split to PR2

DATA ASSESSMENT SUMMARY

REVIEW ITEM	Alkalinity	6010	6020	TDS/P	F/Cl/SO4	NO ₂ /NO ₃ /NH ₃
	ICP/MFS	ICP/MS	Hg(Se)	Cyanide	Anions	Other
1. Data completeness	①② X	0	0	X	X	X
2. Holding times	③ 0	0	0	X	0	0
3. Calibration	0	0	0	0	0	0
4. Blanks	0	0	0	0	0	0
5. Duplicate PRD/Lab Precision	0	0	0	0	0	0
6. LCS, Blank Spike, MFS	0	0	0	0	0	0
7. Matrix Spike, MSD	0	0	0	0	0	0
8. GFAA, MAS, Serial Dil.	⑤ N/A	n/a	n/a	n/a	n/a	n/a
9. Detection Limits, Other QC	0	0	0	0	0	0
10. Field duplicates	④ X	0	0	X	X	0
11. Data verification, Overall Summary	0	0	0	0	0	0

0 = Data had no problems 0 = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or UJ)]
 M = Data qualified due to major problems [typically more than 50% qualified (J/UJ)]
 Z = Data unacceptable [typically data rejected (R)]

Comments/qualified results:

- ✓ ① Cooler Temp @ 7.1°C [qual J/UJ] for anions, ammonia, alkalinity, TDS. on #90013-90022.
- ✓ ② pH > 7 for NH₃, NO₂, NO₃ [qual J/UJ] on sample 90005
- ③ TDS out of hold for samples 90001, 90002, 90004, 90005, 90006, 90007, 90008, [qual J/UJ] ~~more for TDS~~
- ④ Field Dup: poor RPD btwn 90005 + 90006 for Sulfate, Bicarb, Alkalinity, TDS. [qual J/UJ]
 ↳ pending reviewers decision. (likely because preserved sample was analyzed)
 Qualif. not applied for F. Duplicate RPD outliers. *TMJ*
- ✓ ⑤ NO₂/NO₃ RL = 0.05 mg/L rather than 0.02 mg/L as requested.

Validated by: *Jill Fambler* Date: 8/17/2009
 Reviewed by: *Tom Stoff* Date: Aug. 31, 2009

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
 Yes No
 JSI

1. Data package completeness (check if present)

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Case Narrative | <input checked="" type="checkbox"/> Instrument Detection Limits | <input checked="" type="checkbox"/> Acceptable |
| <input checked="" type="checkbox"/> Chain of Custody | <input checked="" type="checkbox"/> ICP Correction Factors | <input checked="" type="checkbox"/> Absent |
| <input checked="" type="checkbox"/> Sample Results | <input checked="" type="checkbox"/> ICP Linear Range | <input checked="" type="checkbox"/> Not required for data package requested. |
| <input checked="" type="checkbox"/> ICV/CCV Results | <input checked="" type="checkbox"/> Preparation Logs | |
| <input checked="" type="checkbox"/> Blank Results | <input checked="" type="checkbox"/> Analysis Run Logs | |
| <input checked="" type="checkbox"/> ICP Interference Check Results | <input checked="" type="checkbox"/> ICP Raw Data | |
| <input checked="" type="checkbox"/> Spike Recovery Results | <input checked="" type="checkbox"/> GFAA Raw Data | |
| <input checked="" type="checkbox"/> Duplicate Results | <input checked="" type="checkbox"/> Mercury Raw Data | |
| <input checked="" type="checkbox"/> LCS Results | <input checked="" type="checkbox"/> Cyanide Raw Data | |
| <input checked="" type="checkbox"/> Standard Addition Results | <input type="checkbox"/> Other (please specify) _____ | |
| <input checked="" type="checkbox"/> ICP Serial Dilution | | |

Comments/Qualified Results:

Cooler Temps: 5.8°C, 7.1°C. Qualify sample results for anions, ammonia, alkalinity, TDS as [estimated (J/UJ)] for samples 90013-90022. No action for metals.
 pH > 2 for NH₃ on sample 90005 (and NO₂/NO₃) [qual J/UJ]
 Not checked until 6/18/09, rather than upon receipt

2. Holding times (check all that apply):

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> ICP/GFAA metals analyzed in 6 months from collection | <input checked="" type="checkbox"/> Anions, TDS, P, NO ₂ , NO ₃ , NH ₃ met HT. | JSI <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Mercury analyzed in 28 days from collection | | |
| <input type="checkbox"/> Cyanide analyzed in 14 days from collection | | |

Comments/Qualified Results:

TDS out of hold for samples 90001, 90002, 90004, 90005, 90006, 90007, 90008 [qual J/UJ]
~~Total P " " 90001, 90002, 90004-90011, 90005-90022.~~
 No Qualif. for Tot. P per QAPP doc. [Signature]

3. Calibrations (check all that apply):

- | |
|---|
| <input checked="" type="checkbox"/> ICV/CCV %R for ICP/AA, 90%-110%, results acceptable |
| <input checked="" type="checkbox"/> ICV/CCV %R for ICP/AA, 75%-89% or 111%-125%, results estimated (J/UJ) |
| <input type="checkbox"/> ICV/CCV %R for ICP/AA, <75% or >125%, reject positive results (R) |
| <input type="checkbox"/> ICV/CCV %R for Mercury, 80%-120%, results acceptable |
| <input type="checkbox"/> ICV/CCV %R for Mercury, 65%-79% or 121%-135%, results estimated (J/UJ) |
| <input type="checkbox"/> ICV/CCV %R for Mercury, <65% or >135%, reject positive results (R) |
| <input type="checkbox"/> ICV/CCV %R for Cyanide, 85%-115%, results acceptable |
| <input type="checkbox"/> ICV/CCV %R for Cyanide, 70%-84% or 116%-130%, results estimated (J/UJ) |
| <input type="checkbox"/> ICV/CCV %R for Cyanide, <70% or >130%, reject positive results (R) |
| <input checked="" type="checkbox"/> CRDL Check Std %R 70-130% (50-150% Sb, Pb, Tl) (ICS) |

Comments/Qualified Results:

No Zn @ 89% for 11:50pm CCV - no action, another CCV run immediately & in control.
 Se' ICSP @ 78% (less than lab CLs, but ok for 70-130% CLs)

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

4. Blanks (check all that apply):

- Detects reported in ICB/CCB list: _____
- Detects in preparation blanks, list: _____
- Detects in field blanks, list: _____

Qualify as undetected (U) all sample concentrations $\leq 10X$ any associated blank concentrations and less than the PQL, or $J+$ for samples greater than the PQL.

Comments/Qualified Results:

ICB Na @ 59.957 J ($> MDL, < PQL$) for W924183 @ 9:01, 11/2/09
 CCB Na @ 42.692 J @ 9:27
 CCB K @ 94.475 J @ 10:55
 CCB Na @ 195.016 J @ 10:55
 CCB Na @ 76.679 J @ 12:05

CCB Na @ 106.215 J ($> MDL < PQL$) for @ 12:4
 No action. All results $> 10X$ blank contamination.

5. Duplicate Sample Analysis (check all that apply):

- Duplicate RPD $\leq 20\%$ for waters, $\leq 35\%$ for soils for results $> 5X$ CRDL
- Duplicate range within $\pm CRDL$ ($\pm 2x CRDL$ for soils) for results $< 5X$ CRDL

Comments/Qualified Results:

Ammonia - no RPDs calculated because results $< 5X$ CRDL.

6. Laboratory Control Samples, Blank Spikes, MFS (check all that apply):

- LCS %R 80-120%, [50-150% for Ag, Sb]
- LCS % 50-79% or $> 120\%$, results $> IDL$ estimated (J)
- LCS %R 50-79% and results $< IDL$ estimated (UJ)
- LCS %R $< 50\%$ and all results rejected (R/UR)

Comments/Qualified Results:

7. Spike Recovery (check all that apply):

- Spike %R within 75%-125% -
- Spike %R 30%-74% or $> 125\%$, results IDL estimated (J)
- Spike %R 30%-74%, results $< IDL$ estimated (UJ)
- Spike %R $< 30\%$, results $< IDL$ rejected (UR), results $> IDL$ estimated (J)
- Field blank used for spike analysis
- Post digest spk reqrd: %R 75-125% except Ag

Comments/Qualified Results:

NO_2/NO_3 : MS Spike $< 4x$ sample result. No action - sample respiked + rerun at appropriate dilution.

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

8. GFAA¹ Performance (check all that apply):.....

- Duplicate injection RSD <20%
- Duplicate injection RSD >20%, results >CRDL estimated (J)
- Analytical spike %R 85%-115%
- Analytical spike %R 40%-85%, results >IDL estimated (J)
- Analytical spike %R 10%-40%, results <IDL estimated (UI)
- Analytical spike %R <10%, results <IDL rejected (R)

n/a

Comments/Qualified Results: _____

n/a.

9. Detection Limits, Other QC: ✓

Comments/Qualified Results: _____

NO₂/NO₃ → 0.05mg/L RL rather than 0.02mg/L as requested. No action other than to note

10. Field Duplicates (check if applicable): ✓

✓ Field duplicate RPD ≤20% for waters, ≤35% for soils except:

Comments/Qualified Results: _____

Samples 90005/90006: Field Dup results >20% for Sulfate, ~~Ammonia~~, Bicarb, Alkalinity, TDS
 - all other QC in control, other Field Dup results ok, + other analytes ok.
 - calibration, dilutions checked.
 - conductivity is an order of magnitude > ~~for~~ for sample 90005 (18440 versus 90006 (2344 μmhos/cm) qual samples 90005+90006
 - Perhaps related to high acidity? for above analytes as JULY
 Qualif. Not applied for F. Duplicates. ✓

11. Results Verification and Overall Assessment: ✓

✓ All results supported in the raw data
 ✓ ICP Serial dilution <10% IDL for >50x IDL

Comments/Qualified Results: _____

Se ICP Serial Dilution: 23%, but results < 50x IDL. No action.

Lamberts, Jill

From: Klisch, Michael
Sent: Wednesday, August 12, 2009 12:39 PM
To: Lamberts, Jill
Subject: RE: Monsanto

See below:

From: Lamberts, Jill
Sent: Wednesday, August 12, 2009 12:18 PM
To: Klisch, Michael
Subject: RE: Monsanto

Thanks.

Also, can you take a look at the sample information spreadsheet:

Location number TW-50: Can you confirm that this should be 90057 instead of 90056? (TW-33 is also called 90056) (The lab data reports results from 90057) TW-50 is indeed 90057

And to note, the split sample TW-59 (90011 and 90012) was submitted as 90011 to both ARI and SVL. There are no results for 90012. My mistake in labeling bottles – 90011 is the sample from this location submitted to SVL. It was also submitted under the same sample number by mistake to ARI as a split sample, which should have been 90012.

Also, I just wanted to confirm that the sample you had as a concern was 90005? (I think your original email said 9005) Yes, it's 90005. 90005 and 90006 are duplicate samples from the same well and there are large discrepancies in alkalinity, sulfate and TDS – the other constituents appear to be reasonable.

Cheers.

Jill Lamberts, MSc | Staff Environmental Scientist | Golder Associates Inc.
18300 NE Union Hill Road, Suite 200, Redmond, Washington, USA 98052
T: +1 (425) 883-0777 | D: +1 (425) 883-0777 | F: +1 (425) 882-5498 | C: +1 206 465-2163 | E: Jill_Lamberts@golder.com
| www.golder.com

Work Safe, Home Safe

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Please consider the environment before printing this email.

From: Klisch, Michael
Sent: Wednesday, August 12, 2009 12:10 PM
To: Lamberts, Jill
Subject: RE: Monsanto

Here it is.

Parameters	Analyzed in 2009	Reporting Limit (mg/L)
Total Metals		
Cadmium	Y	0.002 ✓✓
Calcium	Y	0.04 ✓-
Magnesium	Y	0.06 ✓✓
Manganese	Y	0.004 ✓✓
Molybdenum	Y	0.008 ✓✓
Potassium	Y	0.5 ✓✓
Selenium	Y	0.04 (0.003) ✓✓
Sodium	Y	0.5 ✓✓
Vanadium	Y	0.005 ✓✓
Zinc	Y	0.01 ✓✓
Other Ions		
Alkalinity (CaCO3)	Y	1 ✓ ✓
CO3/CaCO3	Y	1 ✓
HCO3/CaCO3	Y	1 ✓
Ammonia as N	Y	0.03 ✓ ✓
Chloride	Y	1 ✓ ✓
Fluoride	Y	0.1 ✓ ✓
Hardness	Y	0.35
Nitrate and Nitrite As N	Y	0.02 ✓ X ✓ 0.05
Total Phosphorus	Y	0.01 ✓ ✓
Specific Conductance	Y	0.01 ✓ ✓
Sulfate	Y	0.3 ✓ ✓
TDS	Y	10 ✓ ✓
Field Parameters		
Conductivity	Y	NA
Dissolved Oxygen	Y	NA
Eh	N	NA
pH	Y	NA
Turbidity	Y	NA
Temperature	Y	NA



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90001**

SVL Sample ID: **W9F0136-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-May-09 18:00

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:25	
PA 353.2	Nitrate/Nitrite as N	0.0904	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 15:55	
M 2320B	Bicarbonate	680	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:09	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:09	
M 2320B	Total Alkalinity	680	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:09	
M 2540 C	Total Diss. Solids	940	mg/L	10	4		W923277	AGF	06/05/09 11:53	H3
M 4500-P-E	Phosphorus	0.09	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	
Anions by Ion Chromatography										
PA 300.0	Chloride	35.0	mg/L	5.00	1.25	25	W925111	EML	06/18/09 09:16	D2
PA 300.0	Fluoride	0.378	mg/L	0.100	0.023		W925111	EML	06/18/09 09:05	
PA 300.0	Sulfate as SO4	148	mg/L	7.50	0.90	25	W925111	EML	06/18/09 09:16	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

jsi
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90002**

SVL Sample ID: **W9F0136-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-May-09 18:15
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:35	
PA 353.2	Nitrate/Nitrite as N	8.81	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:12	D2
IM 2320B	Bicarbonate	367	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:24	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:24	
IM 2320B	Total Alkalinity	367	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:24	
IM 2540 C	Total Diss. Solids	1260	mg/L	10	4		W923277	AGF	06/05/09 11:53	H3
IM 4500-P-E	Phosphorus	0.20	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	93.6	mg/L	5.00	1.25	25	W925111	EML	06/18/09 09:39	D2
PA 300.0	Fluoride	2.13	mg/L	0.100	0.023		W925111	EML	06/18/09 09:28	
PA 300.0	Sulfate as SO4	467	mg/L	7.50	0.90	25	W925111	EML	06/18/09 09:39	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSI
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90004**

SVL Sample ID: **W9F0136-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-May-09 18:45
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.236	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:37	
PA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:03	
IM 2320B	Bicarbonate	1250	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:35	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:35	
IM 2320B	Total Alkalinity	1250	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:35	
IM 2540 C	Total Diss. Solids	1290	mg/L	10	4		W923277	AGF	06/05/09 11:53	H3 J
IM 4500-P-E	Phosphorus	0.53	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	36.1	mg/L	2.00	0.500	10	W925111	EML	06/18/09 10:03	D2
PA 300.0	Fluoride	0.147	mg/L	0.100	0.023		W925111	EML	06/18/09 09:51	
PA 300.0	Sulfate as SO4	127	mg/L	3.00	0.36	10	W925111	EML	06/18/09 10:03	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSI
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90005**

SVL Sample ID: **W9F0136-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-May-09 19:05
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
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Classical Chemistry Parameters

PA 350.1	Ammonia as N	0.034	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:38	Q13 J
PA 353.2	Nitrate/Nitrite as N	7.89	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:14	D2,Q13 J
M 2320B	Acidity	3330	mg/L	5.0	1.5		W923311	DKS	06/05/09 15:52	
M 2320B	Bicarbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:52	UJ
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:52	UJ
M 2320B	Total Alkalinity	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:52	UJ
M 2540 C	Total Diss. Solids	3770	mg/L	10	4		W923277	AGF	06/05/09 11:53	H3 J
M 4500-P-E	Phosphorus	0.31	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J

Anions by Ion Chromatography

PA 300.0	Chloride	135	mg/L	20.0	5.00	100	W925111	EML	06/18/09 11:12	D2
PA 300.0	Fluoride	3.76	mg/L	1.00	0.230	10	W925111	EML	06/18/09 10:26	D2
PA 300.0	Sulfate as SO4	4300	mg/L	30.0	3.60	100	W925111	EML	06/18/09 11:12	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

151
8/17/09



307

One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90006**

SVL Sample ID: **W9F0136-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-May-09 19:10

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:39	
PA 353.2	Nitrate/Nitrite as N	8.63	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:15	D2
M 2320B	Bicarbonate	451	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:55	J
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:55	J
M 2320B	Total Alkalinity	451	mg/L	1.0	0.3		W923311	DKS	06/05/09 15:55	J
M 2540 C	Total Diss. Solids	1680	mg/L	10	4		W923277	AGF	06/05/09 11:53	H3 J
M 4500-P-E	Phosphorus	0.31	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	135	mg/L	5.00	1.25	25	W925111	EML	06/18/09 18:19	D2
PA 300.0	Fluoride	3.34	mg/L	0.100	0.023		W925111	EML	06/18/09 18:08	
PA 300.0	Sulfate as SO4	647	mg/L	7.50	0.90	25	W925111	EML	06/18/09 18:19	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

151
8/19/09



308

One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90007**

SVL Sample ID: **W9F0136-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-May-09 19:20
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:41	
PA 353.2	Nitrate/Nitrite as N	6.25	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:16	D2
M 2320B	Bicarbonate	685	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:07	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:07	
M 2320B	Total Alkalinity	685	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:07	
M 2540 C	Total Diss. Solids	1240	mg/L	10	4		W923277	AGF	06/05/09 11:53	H3 ↓
M 4500-P-E	Phosphorus	0.44	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	191	mg/L	10.0	2.50	50	W925111	EML	06/18/09 11:59	D2
PA 300.0	Fluoride	0.752	mg/L	0.100	0.023		W925111	EML	06/18/09 11:47	
PA 300.0	Sulfate as SO4	178	mg/L	15.0	1.80	50	W925111	EML	06/18/09 11:59	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSI
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90008**

SVL Sample ID: **W9F0136-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 28-May-09 20:30
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	1.39	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:42	
PA 353.2	Nitrate/Nitrite as N	4.31	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:04	
IM 2320B	Bicarbonate	750	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:24	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:24	
IM 2320B	Total Alkalinity	750	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:24	
IM 2540 C	Total Diss. Solids	970	mg/L	10	4		W923277	AGF	06/05/09 11:53	H3 J
IM 4500-P-E	Phosphorus	0.42	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	25.7	mg/L	5.00	1.25	25	W925111	EML	06/18/09 12:22	D2
PA 300.0	Fluoride	3.03	mg/L	0.100	0.023		W925111	EML	06/18/09 12:10	
PA 300.0	Sulfate as SO4	130	mg/L	7.50	0.90	25	W925111	EML	06/18/09 12:22	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

151
8/17/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Goldcr Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90009**

SVL Sample ID: **W9F0136-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 08:30
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.555	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:43	
PA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:05	
IM 2320B	Bicarbonate	1090	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:41	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:41	
IM 2320B	Total Alkalinity	1090	mg/L	1.0	0.3		W923311	DKS	06/05/09 16:41	
IM 2540 C	Total Diss. Solids	1170	mg/L	10	4		W923277	AGF	06/05/09 11:53	
IM 4500-P-E	Phosphorus	0.63	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	24.3	mg/L	1.00	0.250	5	W925111	EML	06/18/09 12:45	D2
PA 300.0	Fluoride	0.286	mg/L	0.100	0.023		W925111	EML	06/18/09 12:33	
PA 300.0	Sulfate as SO4	97.2	mg/L	1.50	0.18	5	W925111	EML	06/18/09 12:45	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

151
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90010**

SVL Sample ID: **W9F0136-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 09:20
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.392	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:50	
PA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:06	
M 2320B	Bicarbonate	1190	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:01	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:01	
M 2320B	Total Alkalinity	1190	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:01	
M 2540 C	Total Diss. Solids	1140	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.24	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	18.1	mg/L	2.00	0.500	10	W925111	EML	06/18/09 13:42	D2
PA 300.0	Fluoride	0.248	mg/L	0.100	0.023		W925111	EML	06/18/09 13:31	
PA 300.0	Sulfate as SO4	75.0	mg/L	3.00	0.36	10	W925111	EML	06/18/09 13:42	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

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6/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90011**

SVL Sample ID: **W9F0136-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 10:20

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:51	
PA 353.2	Nitrate/Nitrite as N	5.03	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:24	D2
M 2320B	Bicarbonate	766	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:19	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:19	
M 2320B	Total Alkalinity	766	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:19	
M 2540 C	Total Diss. Solids	1260	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.09	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	64.2	mg/L	5.00	1.25	25	W925111	EML	06/18/09 14:17	D2
PA 300.0	Fluoride	0.230	mg/L	0.100	0.023		W925111	EML	06/18/09 14:05	
PA 300.0	Sulfate as SO4	279	mg/L	7.50	0.90	25	W925111	EML	06/18/09 14:17	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSI
8/17/09



313

One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90013**

SVL Sample ID: **W9F0136-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 10:50
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:53	
PA 353.2	Nitrate/Nitrite as N	5.41	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:25	D2
IM 2320B	Bicarbonate	687	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:36	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:36	
IM 2320B	Total Alkalinity	687	mg/L	1.0	0.3		W923311	DKS	06/05/09 17:36	
IM 2540 C	Total Diss. Solids	1340	mg/L	10	4		W923277	AGF	06/05/09 11:53	
IM 4500-P-E	Phosphorus	0.10	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	76.1	mg/L	5.00	1.25	25	W925111	EML	06/18/09 14:40	D2
PA 300.0	Fluoride	0.220	mg/L	0.100	0.023		W925111	EML	06/18/09 14:28	
PA 300.0	Sulfate as SO4	344	mg/L	7.50	0.90	25	W925111	EML	06/18/09 14:40	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSI
8/17/09



314

One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90014**

SVL Sample ID: **W9F0136-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 10:50
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:55	
EPA 353.2	Nitrate/Nitrite as N	4.89	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:27	D2
IM 2320B	Bicarbonate	693	mg/L	1.0	0.3		W923311	DKS	06/08/09 11:44	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 11:44	
IM 2320B	Total Alkalinity	693	mg/L	1.0	0.3		W923311	DKS	06/08/09 11:44	
IM 2540 C	Total Diss. Solids	1350	mg/L	10	4		W923277	AGF	06/05/09 11:53	
IM 4500-P-E	Phosphorus	0.09	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
EPA 300.0	Chloride	78.7	mg/L	5.00	1.25	25	W925111	EML	06/18/09 15:03	D2
EPA 300.0	Fluoride	0.217	mg/L	0.100	0.023		W925111	EML	06/18/09 14:52	
EPA 300.0	Sulfate as SO4	354	mg/L	7.50	0.90	25	W925111	EML	06/18/09 15:03	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JF1
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90015**

SVL Sample ID: **W9F0136-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 11:40
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
3PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:57	UJ
3PA 353.2	Nitrate/Nitrite as N	4.44	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:08	J
3M 2320B	Bicarbonate	571	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:01	J
3M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:01	UJ
3M 2320B	Total Alkalinity	571	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:01	J
3M 2540 C	Total Diss. Solids	865	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
3M 4500-P-E	Phosphorus	0.11	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
3PA 300.0	Chloride	85.3	mg/L	5.00	1.25	25	W925111	EML	06/18/09 15:49	D2 J
3PA 300.0	Fluoride	0.199	mg/L	0.100	0.023		W925111	EML	06/18/09 15:15	J
3PA 300.0	Sulfate as SO4	93.4	mg/L	7.50	0.90	25	W925111	EML	06/18/09 15:49	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

151
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90016**

SVL Sample ID: **W9F0136-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 12:45

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925132	DKG	06/19/09 15:58	UJ
EPA 353.2	Nitrate/Nitrite as N	4.77	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:09	J
SM 2320B	Bicarbonate	389	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:15	J
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:15	UJ
SM 2320B	Total Alkalinity	389	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:15	J
SM 2540 C	Total Diss. Solids	540	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
SM 4500-P-E	Phosphorus	0.08	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
EPA 300.0	Chloride	13.7	mg/L	2.00	0.500	10	W925111	EML	06/18/09 16:12	D2 J
EPA 300.0	Fluoride	0.237	mg/L	0.100	0.023		W925111	EML	06/18/09 16:01	J
EPA 300.0	Sulfate as SO4	67.7	mg/L	3.00	0.36	10	W925111	EML	06/18/09 16:12	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSI
8/17/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90017**

Sampled: 29-May-09 13:00

SVL Sample ID: **W9F0136-15 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925133	DKG	06/19/09 14:19	uJ
EPA 353.2	Nitrate/Nitrite as N	3.70	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:10	J
IM 2320B	Bicarbonate	435	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:26	J
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:26	uJ
IM 2320B	Total Alkalinity	435	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:26	J
IM 2540 C	Total Diss. Solids	576	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
IM 4500-P-E	Phosphorus	0.07	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
EPA 300.0	Chloride	14.4	mg/L	2.00	0.500	10	W925111	EML	06/19/09 01:33	D2 J
EPA 300.0	Fluoride	0.242	mg/L	0.100	0.023		W925111	EML	06/18/09 17:33	J
EPA 300.0	Sulfate as SO4	72.5	mg/L	3.00	0.36	10	W925111	EML	06/19/09 01:33	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JH
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90018**

SVL Sample ID: **W9F0136-16 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 14:05
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925133	DKG	06/19/09 14:23	UJ
PA 353.2	Nitrate/Nitrite as N	15.3	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:35	D2 J
IM 2320B	Bicarbonate	216	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:40	J
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:40	WJ
IM 2320B	Total Alkalinity	216	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:40	J
IM 2540 C	Total Diss. Solids	451	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
IM 4500-P-E	Phosphorus	0.05	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
PA 300.0	Chloride	22.5	mg/L	2.00	0.500	10	W925111	EML	06/19/09 02:19	D2 J
PA 300.0	Fluoride	0.455	mg/L	0.100	0.023		W925111	EML	06/19/09 02:07	J
PA 300.0	Sulfate as SO4	43.7	mg/L	0.30	0.04		W925111	EML	06/19/09 02:07	J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

Jst
5/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90019**

SVL Sample ID: **W9F0136-17 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 14:25
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925133	DKG	06/19/09 14:25	WJ
EPA 353.2	Nitrate/Nitrite as N	1.47	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:11	J
IM 2320B	Bicarbonate	394	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:47	J
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:47	WJ
IM 2320B	Total Alkalinity	394	mg/L	1.0	0.3		W923311	DKS	06/08/09 12:47	J
IM 2540 C	Total Diss. Solids	451	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
IM 4500-P-E	Phosphorus	0.05	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
EPA 300.0	Chloride	12.7	mg/L	2.00	0.500	10	W925111	EML	06/19/09 02:42	D2 J
EPA 300.0	Fluoride	0.264	mg/L	0.100	0.023		W925111	EML	06/19/09 02:31	J
EPA 300.0	Sulfate as SO4	36.6	mg/L	0.30	0.04		W925111	EML	06/19/09 02:31	J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSL
8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90020**

SVL Sample ID: **W9F0136-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 14:45

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925133	DKG	06/19/09 14:26	J
EPA 353.2	Nitrate/Nitrite as N	3.59	mg/L	0.0500	0.0016		W925192	DKG	06/17/09 16:12	J
IM 2320B	Bicarbonate	450	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:19	J
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:19	J
IM 2320B	Total Alkalinity	450	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:19	J
IM 2540 C	Total Diss. Solids	623	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
IM 4500-P-E	Phosphorus	0.09	mg/L	0.01	0.003		W925269	SM	06/18/09 13:45	J
Anions by Ion Chromatography										
EPA 300.0	Chloride	23.4	mg/L	5.00	1.25	25	W925111	EML	06/19/09 03:05	D2 J
EPA 300.0	Fluoride	0.250	mg/L	0.100	0.023		W925111	EML	06/19/09 02:54	J
EPA 300.0	Sulfate as SO4	81.0	mg/L	7.50	0.90	25	W925111	EML	06/19/09 03:05	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

JSL
8/19/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90021**

Sampled: 29-May-09 15:15

SVL Sample ID: **W9F0136-19 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925133	DKG	06/19/09 14:27	U
EPA 353.2	Nitrate/Nitrite as N	4.99	mg/L	0.500	0.0160	10	W925192	DKG	06/17/09 15:38	D2 J
IM 2320B	Bicarbonate	556	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:33	J
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:33	U J
IM 2320B	Total Alkalinity	556	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:33	J
IM 2540 C	Total Diss. Solids	1030	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
IM 4500-P-E	Phosphorus	1.68	mg/L	0.02	0.005	2	W925269	SM	06/18/09 13:45	D2 J
Anions by Ion Chromatography										
EPA 300.0	Chloride	91.8	mg/L	5.00	1.25	25	W925111	EML	06/19/09 04:35	D2 J
EPA 300.0	Fluoride	2.00	mg/L	0.100	0.023		W925111	EML	06/19/09 03:17	J
EPA 300.0	Sulfate as SO4	197	mg/L	7.50	0.90	25	W925111	EML	06/19/09 04:35	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

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8/17/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0136**
Reported: 25-Jun-09 12:32

Client Sample ID: **90022**

SVL Sample ID: **W9F0136-20 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 16:00
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.237	mg/L	0.030	0.010		W925133	DKG	06/19/09 14:29	J
EPA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925192	DKG	06/18/09 10:30	J
IM 2320B	Bicarbonate	1310	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:46	J
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:46	J
IM 2320B	Total Alkalinity	1310	mg/L	1.0	0.3		W923311	DKS	06/08/09 13:46	J
IM 2540 C	Total Diss. Solids	1390	mg/L	10	4		W923277	AGF	06/05/09 11:53	J
IM 4500-P-E	Phosphorus	1.21	mg/L	0.02	0.005	2	W925269	SM	06/18/09 13:45	D2 J
Anions by Ion Chromatography										
EPA 300.0	Chloride	2.01	mg/L	0.200	0.050		W925111	EML	06/19/09 04:47	J
EPA 300.0	Fluoride	1.50	mg/L	0.100	0.023		W925111	EML	06/19/09 04:47	J
EPA 300.0	Sulfate as SO4	163	mg/L	3.00	0.36	10	W925111	EML	06/19/09 04:58	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

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5/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-01 Client ID: 90001

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	140000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	108000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	170	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	3.1	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	10800	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	5.1	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	25200	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	0.17	ug/L	U		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-02 Client ID: 90002

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	4.8	ug/L			P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	164000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	102000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	42.6	ug/L			P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	15800	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	99.4	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	65400	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	5.7	ug/L			P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	77.1	ug/L			P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

1st
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: <u>W9F0136-03</u>		Client ID: <u>90004</u>	
Contract: _____	Lab Code: <u>SVL</u>	Case No.: _____	SAS No.: _____
Matrix: <u>WATER</u>	Date Received: <u>06/04/2009</u>	Level: <u>LOW</u>	
% Solids: _____	Total/Dissolved: _____	TOTAL RECOVERABLE	

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.26	ug/L	J		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	60600	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	271000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	146	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	2.8	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	18500	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	0.79	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	I73G
7440-23-5	Sodium	41500	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	0.17	ug/L	U		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/12/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-04

Client ID: 90005

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	16.8	ug/L			P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	180000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	150000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	75.0	ug/L			P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	29500	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	432	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	108000	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	14.0	ug/L			P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	157	ug/L			P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

jsl
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-05

Client ID: 90006

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	17.0	ug/L			P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	181000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	150000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	76.2	ug/L			P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	29700	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	413	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	109000	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	14.2	ug/L			P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	154	ug/L			P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-06

Client ID: 90007

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	148000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	151000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	20.6	ug/L			P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	11100	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	160	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	58600	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	5.2	ug/L			P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	10.7	ug/L			P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

jsl
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-07

Client ID: 90008

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	23.0	ug/L			P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	136000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	106000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	784	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	244	ug/L			P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	29600	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	131	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	47300	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	5.3	ug/L			P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	107	ug/L			P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/12/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-08

Client ID: 90009

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	1.1	ug/L	J		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	91400	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	204000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	507	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	1.9	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	15500	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	0.90	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	37400	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	0.17	ug/L	U		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	8.6	ug/L	J		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSL
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-09

Client ID: 90010

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.49	ug/L	J		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	68800	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	242000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	6270	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	4.1	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	14400	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	0.60	ug/L	U	D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	36100	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	0.17	ug/L	U		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	15.9	ug/L			P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-10

Client ID: 90011

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	206000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	124000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	3.6	ug/L	J		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	4.3	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	9880	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	107	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	48200	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	2.0	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-11

Client ID: 90013

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	201000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	128000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	47.3	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	5.6	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	10700	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	132	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	58000	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	2.1	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/17/09

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INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-12

Client ID: 90014

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	200000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	127000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	46.5	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	5.7	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	10700	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	131	ug/L		D	MS	0.60	PE ICPMS DRC-E	I73G
7440-23-5	Sodium	57500	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	2.1	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	3.6	ug/L	J		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-13

Client ID: 90015

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	147000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	84800	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	1.7	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	6190	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	9.2	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	28400	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	2.8	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-14

Client ID: 90016

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	98600	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	48000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	1.7	ug/L	J		P	0.31	OPTIMA8	W924183
7440-09-7	Potassium	4320	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	1.6	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	16400	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	3.0	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	3.5	ug/L	J		P	0.94	OPTIMA8	W924183

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-15

Client ID: 90017

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	104000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	53400	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	1.9	ug/L	J		P	0.31	OPTIMA8	W924183A
7440-09-7	Potassium	4510	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	1.5	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	17200	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	2.2	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924183A

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-16

Client ID: 90018

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	88600	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	16900	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	1.8	ug/L	J		P	0.31	OPTIMA8	W924183A
7440-09-7	Potassium	2180	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	2.8	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	I73G
7440-23-5	Sodium	21900	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	7.3	ug/L			P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924183A

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-17

Client ID: 90019

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.51	ug/L	J		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	102000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	40200	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	2.6	ug/L	J		P	0.31	OPTIMA8	W924183A
7440-09-7	Potassium	2400	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	2.6	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	7590	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	2.3	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	9.8	ug/L	J		P	0.94	OPTIMA8	W924183A

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-18

Client ID: 90020

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	112000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	58300	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	6.6	ug/L	J		P	0.31	OPTIMA8	W924183A
7440-09-7	Potassium	4900	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	4.7	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	21500	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	2.3	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	2.8	ug/L	J		P	0.94	OPTIMA8	W924183A

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-19

Client ID: 90021

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	433	ug/L			P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	143000	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	94800	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	10.4	ug/L			P	0.31	OPTIMA8	W924183A
7440-09-7	Potassium	9210	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	132	ug/L		D	MS	0.60	PE ICPMS DRC-E	173G
7440-23-5	Sodium	58500	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	58.7	ug/L			P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	1490	ug/L			P	0.94	OPTIMA8	W924183A

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0136 Method Type: _____

Sample ID: W9F0136-20

Client ID: 90022

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	2.8	ug/L			P	0.13	OPTIMA8	W924183
7440-70-2	Calcium	59200	ug/L			P	10.0	OPTIMA8	W924183
7439-95-4	Magnesium	283000	ug/L			P	8.9	OPTIMA8	W924183
7439-96-5	Manganese	2810	ug/L			P	1.5	OPTIMA8	W924183
7439-98-7	Molybdenum	29.5	ug/L			P	0.31	OPTIMA8	W924183A
7440-09-7	Potassium	20800	ug/L			P	94.0	OPTIMA8	W924183
7782-49-2	Selenium	7.2	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	I73G
7440-23-5	Sodium	81900	ug/L			P	20.0	OPTIMA8	W924183
7440-62-2	Vanadium	1.9	ug/L	J		P	0.17	OPTIMA8	W924183
7440-66-6	Zinc	29.6	ug/L			P	0.94	OPTIMA8	W924183A

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

1. Data package completeness (check if present)

- Case Narrative
- Chain of Custody
- Sample Results
- ICV/CCV Results
- Blank Results
- ICP Interference Check Results
- Spike Recovery Results
- Duplicate Results
- LCS Results
- Standard Addition Results
- ICP Serial Dilution

- Instrument Detection Limits
- ICP Correction Factors
- ICP Linear Range
- Preparation Logs
- Analysis Run Logs
- ICP Raw Data
- GFAA Raw Data
- Mercury Raw Data
- Cyanide Raw Data
- Other (please specify) _____

- Acceptable
- Absent
- Not required for data package requested.

Comments/Qualified Results:

Cooler temps: 5.7°C, 8.1°C [J/UJ] Alkalinity, TDS, Anions, NH₃, NO₂, NO₃ etc for samples 90054, 90055, 90057, 90058, 90059, 90060, 90061, 90062, 90063, 90064, 90044, 90045, 90046, 90047, 90048, 90049, 90050, 90051, 90052, 90053

2. Holding times (check all that apply):

- ICP/GFAA metals analyzed in 6 months from collection
- Mercury analyzed in 28 days from collection
- Cyanide analyzed in 14 days from collection

Comments/Qualified Results:

Alkalinity - out of hold for 90055, 90057, 90058, 90059, 90060, 90061, 90062 (reanalyzed out of hold) Qual J/UJ (also carbonate + bicarbonate)

3. Calibrations (check all that apply):

- ICV/CCV %R for ICP/AA, 90%-110%, results acceptable
- ICV/CCV %R for ICP/AA, 75%-89% or 111%-125%, results estimated (J/UJ)
- ICV/CCV %R for ICP/AA, <75% or >125%, reject positive results (R)
- ICV/CCV %R for Mercury, 80%-120%, results acceptable
- ICV/CCV %R for Mercury, 65%-79% or 121%-135%, results estimated (J/UJ)
- ICV/CCV %R for Mercury, <65% or >135%, reject positive results (R)
- ICV/CCV %R for Cyanide, 85%-115%, results acceptable
- ICV/CCV %R for Cyanide, 70%-84% or 116%-130%, results estimated (J/UJ)
- ICV/CCV %R for Cyanide, <70% or >130%, reject positive results (R)
- CRDL Check Std %R 70-130% (50-150% Sb, Pb, Tl)

Comments/Qualified Results:

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable

Yes



4. Blanks (check all that apply): (J) (J) (J)

- Detects reported in ICB/CCB list: Mo@0.367, Na@46.896, Zn@1.676 for W924185 on 6/15/09 @ 8:36
- Detects in preparation blanks, list: Zn@3.527 (J)
- Detects in field blanks, list: Bicarb@1.6mg/L, Alkalinity@1.6mg/L, Na@829µg/L → no action - all results >10x

Qualify as undetected (U) all sample concentrations ≤10X any associated blank concentrations and less than the PQL, or J+ for samples greater than the PQL.

Comments/Qualified Results:

- qual J+ on Na for 90049 @ 829 µg/L | qual J+ for Zn on 90054, 90055, 90057, 90061, 90062
- qual U on Zn for 90046, 90059
- Mo @ 0.319, Na @ 31.225, Zn @ 1.609 for W924185 on 6/15/09 @ 9:02
- Mo @ 0.316, Na @ 96.751, Zn @ 1.372 for W924185 on 1 @ 10:22 (Mo -ok)
- C @ 94.670, Na @ 141.163, Zn @ 1.340 ↓ ↓ ↓ 1127 (Na -ok except for above)
- Na @ 49.081, Zn @ 1.463 ↓ ↓ ↓ 1248 (Zn -ok except for above)

5. Duplicate Sample Analysis (check all that apply):

- Duplicate RPD ≤20% for waters, ≤35% for soils for results >5X CRDL
- Duplicate range within ±CRDL (±2xCRDL for soils) for results <5X CRDL

Comments/Qualified Results:

No RPD calculated for NH₃, Carbonate, Fluoride, Chloride, SO₄ b/c results < 5X CRDL.

6. Laboratory Control Samples, Blank Spikes, MFS (check all that apply):

- LCS %R 80-120%, [50-150% for Ag, Sb]
- LCS % 50-79% or >120%, results >IDL estimated (J)
- LCS %R 50-79% and results < IDL estimated (UJ)
- LCS %R <50% and all results rejected (R/UR)

Comments/Qualified Results:

7. Spike Recovery (check all that apply):

- Spike %R within 75%-125%
- Spike %R 30%-74% or >125%, results IDL estimated (J)
- Spike %R 30%-74%, results <IDL estimated (UJ)
- Spike %R <30%, results <IDL rejected (UR), results >IDL estimated (J)
- Field blank used for spike analysis
- Post digest spk reqrd: %R 75-125% except Ag

Comments/Qualified Results:

- No Spike calculated for NO₂/NO₃ since ^{4x} spike amt < result.
- MS 90R flagged by lab as out of control high for Cl + SO₄, but ok for 75-125% CLS

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

8. GFAA¹ Performance (check all that apply):.....

- Duplicate injection RSD <20%
- Duplicate injection RSD >20%, results >CRDL estimated (J)
- Analytical spike %R 85%-115%
- Analytical spike %R 40%-85%, results >IDL estimated (J)
- Analytical spike %R 10%-40%, results <IDL estimated (UJ)
- Analytical spike %R <10%, results <IDL rejected (R)

n/a

Comments/Qualified Results: _____

n/a

9. Detection Limits, Other QC:

Comments/Qualified Results: _____

except as noted in SDG # W9F0136

10. Field Duplicates (check if applicable):

- Field duplicate RPD ≤20% for waters, ≤35% for soils

Comments/Qualified Results: _____

11. Results Verification and Overall Assessment:

- All results supported in the raw data
- Serial Dilution <10% D for results >50X IDL

Comments/Qualified Results: _____

Se → serial dilution @ 14% D with results > 10X MDL J/UJ all results for Se

Lamberts, Jill

From: Klisch, Michael
Sent: Wednesday, August 12, 2009 12:39 PM
To: Lamberts, Jill
Subject: RE: Monsanto

See below:

From: Lamberts, Jill
Sent: Wednesday, August 12, 2009 12:18 PM
To: Klisch, Michael
Subject: RE: Monsanto

Thanks.

Also, can you take a look at the sample information spreadsheet:

Location number TW-50: Can you confirm that this should be 90057 instead of 90056? (TW-33 is also called 90056) (The lab data reports results from 90057) **TW-50 is indeed 90057**

And to note, the split sample TW-59 (90011 and 90012) was submitted as 90011 to both ARI and SVL. **There are no results for 90012. My mistake in labeling bottles – 90011 is the sample from this location submitted to SVL. It was also submitted under the same sample number by mistake to ARI as a split sample, which should have been 90012.**

Also, I just wanted to confirm that the sample you had as a concern was 90005? (I think your original email said 9005) **Yes, it's 90005. 90005 and 90006 are duplicate samples from the same well and there are large discrepancies in alkalinity, sulfate and TDS – the other constituents appear to be reasonable.**

Cheers.

Jill Lamberts, MSc | Staff Environmental Scientist | Golder Associates Inc.
18300 NE Union Hill Road, Suite 200, Redmond, Washington, USA 98052
T: +1 (425) 883-0777 | **D:** +1 (425) 883-0777 | **F:** +1 (425) 882-5498 | **C:** +1 206 465-2163 | **E:** Jill_Lamberts@golder.com
| www.golder.com

Work Safe, Home Safe

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Please consider the environment before printing this email.

From: Klisch, Michael
Sent: Wednesday, August 12, 2009 12:10 PM
To: Lamberts, Jill
Subject: RE: Monsanto

Here it is.



299

One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90044**

SVL Sample ID: **W9F0140-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 13:10
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.065	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:18	
EPA 353.2	Nitrate/Nitrite as N	5.41	mg/L	0.500	0.0160	10	W925194	DKG	06/18/09 11:55	D2
IM 2320B	Bicarbonate	516	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:03	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:03	
IM 2320B	Total Alkalinity	516	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:03	
IM 2540 C	Total Diss. Solids	1330	mg/L	10	4		W923279	AGF	06/05/09 14:19	
IM 4500-P-E	Phosphorus	0.25	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	165	mg/L	10.0	2.50	50	W925114	EML	06/17/09 17:29	D2
EPA 300.0	Fluoride	2.43	mg/L	0.100	0.023		W925114	EML	06/17/09 17:06	
EPA 300.0	Sulfate as SO4	383	mg/L	15.0	1.80	50	W925114	EML	06/17/09 17:29	D2

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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JFP
6/18/09



300

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(208) 784-1258

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Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90045**

SVL Sample ID: **W9F0140-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 13:15

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.052	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:23	ML 45 JH
EPA 353.2	Nitrate/Nitrite as N	1.18	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:10	
IM 2320B	Bicarbonate	834	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:10	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:10	
IM 2320B	Total Alkalinity	834	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:10	
IM 2540 C	Total Diss. Solids	878	mg/L	10	4		W923279	AGF	06/05/09 14:19	
IM 4500-P-E	Phosphorus	0.21	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	14.7	mg/L	5.00	1.25	25	W925114	EML	06/17/09 17:53	D2 JH
EPA 300.0	Fluoride	0.622	mg/L	0.100	0.023		W925114	EML	06/17/09 17:41	
EPA 300.0	Sulfate as SO4	58.0	mg/L	7.50	0.90	25	W925114	EML	06/17/09 17:53	D2 JH

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JH
8/18/09



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Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90046**

SVL Sample ID: **W9F0140-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 14:00

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.928	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:25	JULY 13 11:11 AM
EPA 353.2	Nitrate/Nitrite as N	3.41	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:11	
IM 2320B	Bicarbonate	567	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:21	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:21	
IM 2320B	Total Alkalinity	567	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:21	
IM 2540 C	Total Diss. Solids	704	mg/L	10	4		W923279	AGF	06/05/09 14:19	
IM 4500-P-E	Phosphorus	0.12	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	39.7	mg/L	5.00	1.25	25	W925114	EML	06/17/09 18:40	D2
EPA 300.0	Fluoride	0.676	mg/L	0.100	0.023		W925114	EML	06/17/09 18:28	
EPA 300.0	Sulfate as SO4	90.5	mg/L	7.50	0.90	25	W925114	EML	06/17/09 18:40	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSG
8/11/09



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Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90047**

SVL Sample ID: **W9F0140-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 14:35
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
3PA 350.1	Ammonia as N	0.094	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:26	J
3PA 353.2	Nitrate/Nitrite as N	2.14	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:12	J
IM 2320B	Bicarbonate	766	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:28	J
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:28	J
IM 2320B	Total Alkalinity	766	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:28	J
IM 2540 C	Total Diss. Solids	1030	mg/L	10	4		W923279	AGF	06/05/09 14:19	J
IM 4500-P-E	Phosphorus	0.27	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	J

Anions by Ion Chromatography

3PA 300.0	Chloride	54.9	mg/L	5.00	1.25	25	W925114	EML	06/17/09 19:03	D2 J
3PA 300.0	Fluoride	1.04	mg/L	0.100	0.023		W925114	EML	06/17/09 18:51	J
3PA 300.0	Sulfate as SO4	146	mg/L	7.50	0.90	25	W925114	EML	06/17/09 19:03	D2 J

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

1st
8/18/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90048**

SVL Sample ID: **W9F0140-05 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 14:50
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
3PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:34	
3PA 353.2	Nitrate/Nitrite as N	8.85	mg/L	0.500	0.0160	10	W925194	DKG	06/18/09 12:06	D2
3M 2320B	Bicarbonate	678	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:38	
3M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:38	
3M 2320B	Total Alkalinity	678	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:38	
3M 2540 C	Total Diss. Solids	850	mg/L	10	4		W923279	AGF	06/05/09 14:19	
3M 4500-P-E	Phosphorus	0.29	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
3PA 300.0	Chloride	29.8	mg/L	5.00	1.25	25	W925114	EML	06/17/09 19:27	D2
3PA 300.0	Fluoride	0.398	mg/L	0.100	0.023		W925114	EML	06/17/09 19:15	
3PA 300.0	Sulfate as SO4	103	mg/L	7.50	0.90	25	W925114	EML	06/17/09 19:27	D2

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This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JAG
8/18/09



304

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Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90049**

SVL Sample ID: **W9F0140-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 16:30

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	<0.030	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:35	WJ
PA 353.2	Nitrate/Nitrite as N	<0.0500	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:13	WJ
IM 2320B	Bicarbonate	1.6	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:49	J
IM 2320B	Carbonate	<1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:49	WJ
IM 2320B	Total Alkalinity	1.6	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:49	J
IM 2540 C	Total Diss. Solids	<10	mg/L	10	4		W923279	AGF	06/05/09 14:19	WJ
IM 4500-P-E	Phosphorus	<0.01	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	WJ
Anions by Ion Chromatography										
PA 300.0	Chloride	<0.200	mg/L	0.200	0.050		W925114	EML	06/17/09 19:38	WJ
PA 300.0	Fluoride	<0.100	mg/L	0.100	0.023		W925114	EML	06/17/09 19:38	WJ
PA 300.0	Sulfate as SO4	<0.30	mg/L	0.30	0.04		W925114	EML	06/17/09 19:38	WJ

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSP
8/18/09



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(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90050**

SVL Sample ID: **W9F0140-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 17:15

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.343	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:37	J W J J J J
EPA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:14	
IM 2320B	Bicarbonate	866	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:55	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:55	
IM 2320B	Total Alkalinity	866	mg/L	1.0	0.3		W923307	DKS	06/09/09 14:55	
IM 2540 C	Total Diss. Solids	917	mg/L	10	4		W923279	AGF	06/05/09 14:19	
IM 4500-P-E	Phosphorus	2.14	mg/L	0.10	0.03	10	W925231	SM	06/17/09 16:42	D2
Anions by Ion Chromatography										
EPA 300.0	Chloride	27.4	mg/L	5.00	1.25	25	W925114	EML	06/17/09 21:00	D2
EPA 300.0	Fluoride	0.408	mg/L	0.100	0.023		W925114	EML	06/17/09 20:49	
EPA 300.0	Sulfate as SO4	97.4	mg/L	7.50	0.90	25	W925114	EML	06/17/09 21:00	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
8/18/09



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(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90051**

SVL Sample ID: **W9F0140-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 09:30
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
3PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:38	WJ
3PA 353.2	Nitrate/Nitrite as N	3.87	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:15	J
3M 2320B	Bicarbonate	394	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:08	J
3M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:08	WJ
3M 2320B	Total Alkalinity	394	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:08	J
3M 2540 C	Total Diss. Solids	568	mg/L	10	4		W923279	AGF	06/05/09 14:19	J
3M 4500-P-E	Phosphorus	0.13	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	J
Anions by Ion Chromatography										
3PA 300.0	Chloride	39.3	mg/L	5.00	1.25	25	W925114	EML	06/17/09 21:24	D2 J
3PA 300.0	Fluoride	0.281	mg/L	0.100	0.023		W925114	EML	06/17/09 21:12	I
3PA 300.0	Sulfate as SO4	87.9	mg/L	7.50	0.90	25	W925114	EML	06/17/09 21:24	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSP
8/18/09



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One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90052**

SVL Sample ID: **W9F0140-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 11:25
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
3PA 350.1	Ammonia as N	0.647	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:39	J
3PA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:16	UJ
3M 2320B	Bicarbonate	1370	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:16	J
3M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:16	UJ
3M 2320B	Total Alkalinity	1370	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:16	J
3M 2540 C	Total Diss. Solids	1300	mg/L	10	4		W923279	AGF	06/05/09 14:19	I
3M 4500-P-E	Phosphorus	0.87	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	I
Anions by Ion Chromatography										
3PA 300.0	Chloride	18.9	mg/L	2.00	0.500	10	W925114	EML	06/17/09 21:47	D2 J
3PA 300.0	Fluoride	0.132	mg/L	0.100	0.023		W925114	EML	06/17/09 21:36	I
3PA 300.0	Sulfate as SO4	79.8	mg/L	3.00	0.36	10	W925114	EML	06/17/09 21:47	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSP
8/18/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90053**

SVL Sample ID: **W9F0140-10 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 13:00
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	0.813	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:41	
EPA 353.2	Nitrate/Nitrite as N	4.95	mg/L	0.500	0.0160	10	W925194	DKG	06/18/09 12:15	D2
IM 2320B	Bicarbonate	689	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:30	
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:30	
IM 2320B	Total Alkalinity	689	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:30	
IM 2540 C	Total Diss. Solids	1060	mg/L	10	4		W923279	AGF	06/05/09 14:19	
IM 4500-P-E	Phosphorus	0.33	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	80.4	mg/L	10.0	2.50	50	W925114	EML	06/17/09 22:34	D2
EPA 300.0	Fluoride	4.63	mg/L	0.100	0.023		W925114	EML	06/17/09 22:11	
EPA 300.0	Sulfate as SO4	179	mg/L	1.50	0.18	5	W925114	EML	06/17/09 22:23	D2

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Kirby Gray
Technical Director

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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: **25-Jun-09 12:57**

Client Sample ID: **90054**

SVL Sample ID: **W9F0140-11 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 14:50
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:42	
EPA 353.2	Nitrate/Nitrite as N	4.41	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:17	
SM 2320B	Bicarbonate	400	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:40	
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:40	
SM 2320B	Total Alkalinity	400	mg/L	1.0	0.3		W923307	DKS	06/09/09 15:40	
SM 2540 C	Total Diss. Solids	479	mg/L	10	4		W923279	AGF	06/05/09 14:19	
SM 4500-P-E	Phosphorus	0.18	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	20.2	mg/L	5.00	1.25	25	W925114	EML	06/17/09 23:21	D2
EPA 300.0	Fluoride	0.257	mg/L	0.100	0.023		W925114	EML	06/17/09 23:10	
EPA 300.0	Sulfate as SO4	47.4	mg/L	0.30	0.04		W925114	EML	06/17/09 23:10	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

jsl
8/18/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90055**

FIELD DUPLICATE of 90054

SVL Sample ID: **W9F0140-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 14:55

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:45	
EPA 353.2	Nitrate/Nitrite as N	4.45	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:18	
SM 2320B	Bicarbonate	402	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:03	H6 UJ
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:03	H6 UJ
SM 2320B	Total Alkalinity	402	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:03	H6 J
SM 2540 C	Total Diss. Solids	498	mg/L	10	4		W923279	AGF	06/05/09 14:19	
SM 4500-P-E	Phosphorus	0.17	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	21.7	mg/L	5.00	1.25	25	W925114	EML	06/17/09 23:45	D2
EPA 300.0	Fluoride	0.257	mg/L	0.100	0.023		W925114	EML	06/17/09 23:33	
EPA 300.0	Sulfate as SO4	47.5	mg/L	0.30	0.04		W925114	EML	06/17/09 23:33	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

J51
8/18/08



311

One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90057**

SVL Sample ID: **W9F0140-13 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 16:00
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:51	
EPA 353.2	Nitrate/Nitrite as N	1.01	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:19	
SM 2320B	Bicarbonate	487	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:14	H6 J
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:14	H6 UJ
SM 2320B	Total Alkalinity	487	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:14	H6 J
SM 2540 C	Total Diss. Solids	1440	mg/L	10	4		W923279	AGF	06/05/09 14:19	
SM 4500-P-E	Phosphorus	0.33	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	213	mg/L	10.0	2.50	50	W925114	EML	06/18/09 00:08	D2
EPA 300.0	Fluoride	0.460	mg/L	0.100	0.023		W925114	EML	06/17/09 23:57	
EPA 300.0	Sulfate as SO4	452	mg/L	15.0	1.80	50	W925114	EML	06/18/09 00:08	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JST
8/18/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90058**

SVL Sample ID: **W9F0140-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 16:55
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925139	DKG	06/23/09 14:53	
EPA 353.2	Nitrate/Nitrite as N	7.76	mg/L	0.500	0.0160	10	W925194	DKG	06/18/09 12:20	D2
SM 2320B	Bicarbonate	401	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:25	H6 J
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:25	H6 UJ
SM 2320B	Total Alkalinity	401	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:25	H6 J
SM 2540 C	Total Diss. Solids	1870	mg/L	10	4		W923279	AGF	06/05/09 14:19	
SM 4500-P-E	Phosphorus	4.04	mg/L	0.10	0.03	10	W925231	SM	06/17/09 16:42	D2
Anions by Ion Chromatography										
EPA 300.0	Chloride	290	mg/L	10.0	2.50	50	W925114	EML	06/18/09 00:43	D2
EPA 300.0	Fluoride	2.05	mg/L	0.100	0.023		W925114	EML	06/18/09 00:20	
EPA 300.0	Sulfate as SO4	650	mg/L	15.0	1.80	50	W925114	EML	06/18/09 00:43	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JKL
6/18/09



313

One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA) 18300 NE Union Hill Road, Suite 200 Redmond, WA 98052-3333	Project Name: Monsanto Level 3 Work Order: W9F0140 Reported: 25-Jun-09 12:57
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Client Sample ID: **90059**

SVL Sample ID: **W9F0140-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 17:25
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925141	DKG	06/19/09 16:35	
EPA 353.2	Nitrate/Nitrite as N	6.00	mg/L	0.500	0.0160	10	W925194	DKG	06/18/09 12:21	D2
SM 2320B	Bicarbonate	370	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:36	H6 J
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:36	H6 UJ
SM 2320B	Total Alkalinity	370	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:36	H6 J
SM 2540 C	Total Diss. Solids	1020	mg/L	10	4		W923279	AGF	06/05/09 14:19	
SM 4500-P-E	Phosphorus	6.14	mg/L	0.10	0.03	10	W925231	SM	06/17/09 16:42	D2
Anions by Ion Chromatography										
EPA 300.0	Chloride	116	mg/L	5.00	1.25	25	W925114	EML	06/18/09 11:24	D2
EPA 300.0	Fluoride	3.75	mg/L	0.100	0.023		W925114	EML	06/18/09 00:55	
EPA 300.0	Sulfate as SO4	310	mg/L	7.50	0.90	25	W925114	EML	06/18/09 11:24	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JKL 8/18/09



314

One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90060**

SVL Sample ID: **W9F0140-16 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 18:30
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925141	DKG	06/19/09 16:39	
EPA 353.2	Nitrate/Nitrite as N	4.94	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:24	
IM 2320B	Bicarbonate	428	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:46	H6
IM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:46	H6
IM 2320B	Total Alkalinity	428	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:46	H6
IM 2540 C	Total Diss. Solids	1080	mg/L	10	4		W923279	AGF	06/05/09 14:19	
IM 4500-P-E	Phosphorus	1.26	mg/L	0.02	0.005	2	W925231	SM	06/17/09 16:42	D2

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Anions by Ion Chromatography

EPA 300.0	Chloride	185	mg/L	5.00	1.25	25	W925114	EML	06/18/09 07:20	D2
EPA 300.0	Fluoride	0.833	mg/L	0.100	0.023		W925114	EML	06/18/09 07:08	
EPA 300.0	Sulfate as SO4	229	mg/L	7.50	0.90	25	W925114	EML	06/18/09 07:20	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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8/18/09



315

One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90061**

SVL Sample ID: **W9F0140-17 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 01-Jun-09 18:45
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925141	DKG	06/19/09 16:46	
EPA 353.2	Nitrate/Nitrite as N	4.58	mg/L	0.0500	0.0016		W925194	DKG	06/18/09 13:25	
SM 2320B	Bicarbonate	426	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:58	H6 J
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:58	H6 J
SM 2320B	Total Alkalinity	426	mg/L	1.0	0.3		W926207	DKS	06/25/09 09:58	H6 J
SM 2540 C	Total Diss. Solids	808	mg/L	10	4		W923279	AGF	06/05/09 14:19	
SM 4500-P-E	Phosphorus	0.48	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	78.2	mg/L	5.00	1.25	25	W925114	EML	06/18/09 07:44	D2
EPA 300.0	Fluoride	0.437	mg/L	0.100	0.023		W925114	EML	06/18/09 07:32	
EPA 300.0	Sulfate as SO4	171	mg/L	7.50	0.90	25	W925114	EML	06/18/09 07:44	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSI
8/18/09



316

One Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0140**
Reported: 25-Jun-09 12:57

Client Sample ID: **90062**

SVL Sample ID: **W9F0140-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 02-Jun-09 11:25

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
EPA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925141	DKG	06/19/09 16:47	
EPA 353.2	Nitrate/Nitrite as N	6.44	mg/L	0.500	0.0160	10	W925194	DKG	06/18/09 12:28	D2
SM 2320B	Bicarbonate	392	mg/L	1.0	0.3		W926207	DKS	06/25/09 10:08	H6 J
SM 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W926207	DKS	06/25/09 10:08	H6 WJ
SM 2320B	Total Alkalinity	392	mg/L	1.0	0.3		W926207	DKS	06/25/09 10:08	H6 J
SM 2540 C	Total Diss. Solids	674	mg/L	10	4		W923279	AGF	06/05/09 14:19	
SM 4500-P-E	Phosphorus	0.08	mg/L	0.01	0.003		W925231	SM	06/17/09 16:42	
Anions by Ion Chromatography										
EPA 300.0	Chloride	49.4	mg/L	5.00	1.25	25	W925114	EML	06/18/09 08:07	D2
EPA 300.0	Fluoride	0.349	mg/L	0.100	0.023		W925114	EML	06/18/09 07:55	
EPA 300.0	Sulfate as SO4	128	mg/L	7.50	0.90	25	W925114	EML	06/18/09 08:07	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
6/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-01

Client ID: 90044

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	4.6	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	138000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	123000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	14.2	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	52.3	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	20300	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	201	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	123000	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	13.0	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	108	ug/L			P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSL
8/18/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-02

Client ID: 90045

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	2.9	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	111000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	126000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	82.5	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	14.0	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	12300	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	23.9	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	37400	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	4.3	ug/L	J		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	46.1	ug/L			P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSL
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-03

Client ID: 90046

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	133000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	67200	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	95.1	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	136	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	7920	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	3.1	ug/L	J	J ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	38800	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	3.5	ug/L	J		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	6.1	ug/L	J	U	P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSP
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-04

Client ID: 90047

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	3.6	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	126000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	129000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	105	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	22.5	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	14700	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	69.4	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	60700	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	7.0	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	55.8	ug/L			P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

SVL
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-05

Client ID: 90048

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.24	ug/L	J		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	121000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	108000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	98.4	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	4.5	ug/L	J		P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	6730	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	16.4	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	37100	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	11.3	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	46.2	ug/L			P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSA
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-06

Client ID: 90049

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	12.8	ug/L	J		P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	8.9	ug/L	U		P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	0.31	ug/L	U		P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	94.0	ug/L	U		P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	0.60	ug/L	U	WJ ED	MS	0.60	PE ICPMS DRC-E	I73F
7440-23-5	Sodium	829	ug/L		J+	P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	0.17	ug/L	U		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSP
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-07

Client ID: 90050

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	2.0	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	53900	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	187000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	226	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	5.8	ug/L	J		P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	12100	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	1.2	ug/L	J	J ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	31100	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	1.1	ug/L	J		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	67.3	ug/L			P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSL
6/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-08

Client ID: 90051

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	114000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	47300	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	35.8	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	3740	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	7.4	ug/L	J J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	25600	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	138	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

*JSK
8/18/09*

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-09

Client ID: 90052

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.40	ug/L	J		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	51900	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	295000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	108	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	2.7	ug/L	J		P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	21700	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	0.60	ug/L	U	W ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	47500	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	0.17	ug/L	U		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JL
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-10

Client ID: 90053

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	289	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	153000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	110000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	280	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	332	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	27100	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	234	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	56100	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	77.9	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	1940	ug/L			P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JPL
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-11

Client ID: 90054

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.43	ug/L	J		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	110000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	39000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	2.8	ug/L	J		P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	41.0	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	2510	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	2.9	ug/L	J	J ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	16500	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	456	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	13.1	ug/L	J+		P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSP
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-12

Client ID: 90055

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.45	ug/L	J		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	109000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	38800	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	2.3	ug/L	J		P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	40.9	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	2480	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	3.0	ug/L	J	J ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	16400	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	456	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	12.1	ug/L		J+	P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSR
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-13

Client ID: 90057

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	5.5	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	128000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	170000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	610	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	25.6	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	15300	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	46.3	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	80400	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	3.1	ug/L	J		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	16.5	ug/L	J+		P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSR
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-14

Client ID: 90058

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.31	ug/L	J		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	210000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	129000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	4.9	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	93.2	ug/L			P	0.31	OPTIMA8	W924185
7440-09-7	Potassium	35500	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	237	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	173000	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	3.6	ug/L	J		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	0.94	ug/L	U		P	0.94	OPTIMA8	W924185

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-15

Client ID: 90059

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	4.4	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	132000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	70200	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	129	ug/L			P	0.31	OPTIMA8	W924185B
7440-09-7	Potassium	27400	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	220	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	76800	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	12.6	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	9.9	ug/L	J	U	P	0.94	OPTIMA8	W924185B

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JL
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-16

Client ID: 90060

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	58.9	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	142000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	76400	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	44.1	ug/L			P	0.31	OPTIMA8	W924185B
7440-09-7	Potassium	14900	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	68.7	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	120000	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	14.7	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	72.6	ug/L			P	0.94	OPTIMA8	W924185B

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSP
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-17

Client ID: 90061

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	6.0	ug/L			P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	128000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	62500	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	1.5	ug/L	U		P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	42.6	ug/L			P	0.31	OPTIMA8	W924185B
7440-09-7	Potassium	8110	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	22.6	ug/L	J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	54900	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	23.4	ug/L			P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	13.7	ug/L	J+		P	0.94	OPTIMA8	W924185B

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

jsl
8/18/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0140 Method Type: _____

Sample ID: W9F0140-18

Client ID: 90062

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.13	ug/L	U		P	0.13	OPTIMA8	W924185
7440-70-2	Calcium	105000	ug/L			P	10.0	OPTIMA8	W924185
7439-95-4	Magnesium	61000	ug/L			P	8.9	OPTIMA8	W924185
7439-96-5	Manganese	20.1	ug/L			P	1.5	OPTIMA8	W924185
7439-98-7	Molybdenum	79.2	ug/L			P	0.31	OPTIMA8	W924185B
7440-09-7	Potassium	7390	ug/L			P	94.0	OPTIMA8	W924185
7782-49-2	Selenium	1.5	ug/L	J J	ED	MS	0.60	PE ICPMS DRC-E	173F
7440-23-5	Sodium	30700	ug/L			P	20.0	OPTIMA8	W924185
7440-62-2	Vanadium	1.9	ug/L	J		P	0.17	OPTIMA8	W924185
7440-66-6	Zinc	31.4	ug/L	J+		P	0.94	OPTIMA8	W924185B

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JJP
8/18/09

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

PROJECT: 9131101.605A	SITE: Monsanto, Soda Springs, Idaho
LABORATORY: SVL Analytical, Inc.	SDG: W9F1037
SAMPLES: 90023, 90024, 90025, 90026, 90027, 90028, 90029, 90030, 90031, 90033, 90034, 90035, 90036, 90037, 90038, 90039, 90040, 90041, 90042, 90043	MATRIX: Groundwater fielddup - Surface water/Effluent
(20 samples)	
SPILL TO RIA	
COLLECTION DATE: 5/31/2009, 5/29/2009, 5/30/2009	

DATA ASSESSMENT SUMMARY

REVIEW ITEM	Alkalinity ICP/AES	ICP/MS	Hg/Se	TDS, P, F, Cl, SO ₄ Cyanide	NO ₂ /NO ₃ /NH ₄ Anions	Other
1. Data completeness (1)	0	0	0	0	0	X
2. Holding times	0	0	0	0	0	0
3. Calibration	0	0	0	0	0	0
4. Blanks (2)	0	X	0	0	0	0
5. Duplicate PRD/Lab Precision	0	0	0	0	0	0
6. LCS, Blank Spike, MFS	0	0	0	0	0	0
7. Matrix Spike, MSD (3)	0	X	0	0	0	0
8. GFAA, MAS, Serial Dil.	N/A					
9. Detection Limits, Other QC	0	0	0	0	0	0
10. Field duplicates	0	0	0	0	0	0
11. Data verification, Overall Summary	0	0	0	0	0	0

0 = Data had no problems 0 = Problems, but do not affect data
 X = Data qualified due to minor problems [typically estimated data (J or UJ)]
 M = Data qualified due to major problems [typically more than 50% qualified (J/UJ)]
 Z = Data unacceptable [typically data rejected (R)]

Comments/qualified results:

- ✓ (1) preservation out for NO₂/NO₃/NH₄ on #90039 qual J/UJ
- ✓ (2) PCB for V out of control high qual U on 90027.
- ✓ (3) MS for Mg, Na, Ca out of control qual J on 90024

Validated by: Jill Sember Date: 8/17/2009
 Reviewed by: Tom Stoff Date: Sept. 3, 2009

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
 Yes No

1. Data package completeness (check if present)

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Case Narrative | <input checked="" type="checkbox"/> Instrument Detection Limits | <input type="checkbox"/> Acceptable |
| <input checked="" type="checkbox"/> Chain of Custody | <input checked="" type="checkbox"/> ICP Correction Factors | <input checked="" type="checkbox"/> Absent |
| <input checked="" type="checkbox"/> Sample Results | <input checked="" type="checkbox"/> ICP Linear Range | <input type="checkbox"/> Not required for data package requested. |
| <input checked="" type="checkbox"/> ICV/CCV Results | <input checked="" type="checkbox"/> Preparation Logs | |
| <input checked="" type="checkbox"/> Blank Results | <input checked="" type="checkbox"/> Analysis Run Logs | |
| <input checked="" type="checkbox"/> ICP Interference Check Results | <input checked="" type="checkbox"/> ICP Raw Data | |
| <input checked="" type="checkbox"/> Spike Recovery Results | <input type="checkbox"/> GFAA Raw Data | |
| <input checked="" type="checkbox"/> Duplicate Results | <input type="checkbox"/> Mercury Raw Data | |
| <input checked="" type="checkbox"/> LCS Results | <input type="checkbox"/> Cyanide Raw Data | |
| <input type="checkbox"/> Standard Addition Results | <input type="checkbox"/> Other (please specify) _____ | |
| <input checked="" type="checkbox"/> ICP Serial Dilution | | |

Comments/Qualified Results: _____

* Cooler temps ok @ 4.8°C, 5.9°C.
 * pH for NO₂/NO₃ on #90039 @ 8 on 6/18/09. [qual J/UJ.]
 and NH₄ 6/23/09

2. Holding times (check all that apply): ✓

- | | |
|--|---|
| <input checked="" type="checkbox"/> ICP/GFAA metals analyzed in 6 months from collection | ✓ anions, alkalinity, NO ₂ /NO ₃ NH ₄ ok |
| <input type="checkbox"/> Mercury analyzed in 28 days from collection | |
| <input type="checkbox"/> Cyanide analyzed in 14 days from collection | |

Comments/Qualified Results: _____

3. Calibrations (check all that apply): ✓

- ICV/CCV %R for ICP/AA, 90%-110%, results acceptable
- ICV/CCV %R for ICP/AA, 75%-89% or 111%-125%, results estimated (J/UJ)
- ICV/CCV %R for ICP/AA, <75% or >125%, reject positive results (R)
- ICV/CCV %R for Mercury, 80%-120%, results acceptable
- ICV/CCV %R for Mercury, 65%-79% or 121%-135%, results estimated (J/UJ)
- ICV/CCV %R for Mercury, <65% or >135%, reject positive results (R)
- ICV/CCV %R for Cyanide, 85%-115%, results acceptable
- ICV/CCV %R for Cyanide, 70%-84% or 116%-130%, results estimated (J/UJ)
- ICV/CCV %R for Cyanide, <70% or >130%, reject positive results (R)
- CRDL Check Std %R 70-130% (50-150% Sb, Pb, Tl)

Comments/Qualified Results: _____

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
 Yes No

4. Blanks (check all that apply):

- Detects reported in ICB/CCB list: see below
- Detects in preparation blanks, list: _____
- Detects in field blanks, list: n/a

Qualify as undetected (U) all sample concentrations $\leq 10X$ any associated blank concentrations and less than the PQL, or $J+$ for samples greater than the PQL.

Comments/Qualified Results:

V@0.503 J (>MDL, <PQL) for W9F0137 @ 10:43, 6/14/09 → qual U on 900277, all other bracketing results $> 10X$
Na@ 43.009 J I W9 24184 13:06 I → no action, all results $> 10X$ blank contamination

5. Duplicate Sample Analysis (check all that apply):

- Duplicate RPD $\leq 20\%$ for waters, $\leq 35\%$ for soils for results $> 5X$ CRDL
- Duplicate range within $\pm CRDL$ ($\pm 2xCRDL$ for soils) for results $< 5X$ CRDL

Comments/Qualified Results:

NO₂/NO₃, Carbonate - no RPD calculated since results were $< 5X$ CRDL.

6. Laboratory Control Samples, Blank Spikes, MFS (check all that apply):

- LCS %R 80-120%, [50-150% for Ag, Sb]
- LCS % 50-79% or $> 120\%$, results $> IDL$ estimated (J)
- LCS %R 50-79% and results $< IDL$ estimated (U)
- LCS %R $< 50\%$ and all results rejected (R/UR)

Comments/Qualified Results:

7. Spike Recovery (check all that apply):

- Spike %R within 75%-125%
- Spike %R 30%-74% or $> 125\%$, results $> IDL$ estimated (J)
- Spike %R 30%-74%, results $< IDL$ estimated (U)
- Spike %R $< 30\%$, results $< IDL$ rejected (UR), results $> IDL$ estimated (J)
- Field blank used for spike analysis
- Post digest spk reqrd: %R 75-125% except Ag

Comments/Qualified Results:

MS For Mg @ 129% } [J qual] parent sample only (90024) b/c all other QC in control
Na @ 133% }
MSD For Ca @ 71% }

NH₃ + SO₄ MS flagged by lab as being out of control. No action, w/in 75-125% CLs.

METALS & INORGANIC/Tier I & II DATA VALIDATION SUMMARY CHECKLIST

Acceptable
Yes No

8. GFAA¹ Performance (check all that apply):.....

n/a.

- Duplicate injection RSD <20%
- Duplicate injection RSD >20%, results >CRDL estimated (J)
- Analytical spike %R 85%-115%
- Analytical spike %R 40%-85%, results >IDL estimated (J)
- Analytical spike %R 10%-40%, results <IDL estimated (UJ)
- Analytical spike %R <10%, results <IDL rejected (R)

Comments/Qualified Results: _____

n/a

9. Detection Limits, Other QC: _____

Comments/Qualified Results: _____

except as noted in SDG # W9F0136

10. Field Duplicates (check if applicable): _____

- Field duplicate RPD ≤20% for waters, ≤35% for soils

Comments/Qualified Results: _____

11. Results Verification and Overall Assessment: _____

- All results supported in the raw data serial dilution <10% D for > 50X IDL

Comments/Qualified Results: _____

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-01

Client ID: 90023

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	103000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	206000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	396	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	12.3	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	19200	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	0.60	ug/L	U	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	44400	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	0.48	ug/L	U		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	6.5	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

jsl
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-02

Client ID: 90024

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA 1	W924184
7440-70-2	Calcium	150000	ug/L		J	P	18.0	OPTIMA 1	W924184
7439-95-4	Magnesium	130000	ug/L		J	P	15.0	OPTIMA 1	W924184
7439-96-5	Manganese	550	ug/L			P	1.3	OPTIMA 1	W924184
7439-98-7	Molybdenum	126	ug/L			P	2.3	OPTIMA 1	W924184
7440-09-7	Potassium	28900	ug/L			P	69.0	OPTIMA 1	W924184
7782-49-2	Selenium	298	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	156000	ug/L		J	P	41.0	OPTIMA 1	W924184
7440-62-2	Vanadium	5.2	ug/L			P	0.48	OPTIMA 1	W924184
7440-66-6	Zinc	10.8	ug/L			P	1.9	OPTIMA 1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Jst
8/27/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-03

Client ID: 90025

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	2020	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	310000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	145000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	26.6	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	139	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	49100	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	571	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	251000	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	52.5	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	3160	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-04

Client ID: 90026

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	1670	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	261000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	117000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	5.4	ug/l.			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	136	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	50000	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	578	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	199000	ug/l.			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	62.7	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	2180	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

*JS1
8/17/2009*

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-05

Client ID: 90027

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	105000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	54200	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	9.2	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	4610	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	1.5	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	17500	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	2.4	ug/L	J	u	P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	1.9	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Jsl
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-06

Client ID: 90028

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	1.6	ug/L	J		P	0.96	OPTIMA 1	W924184
7440-70-2	Calcium	131000	ug/L			P	18.0	OPTIMA 1	W924184
7439-95-4	Magnesium	64400	ug/L			P	15.0	OPTIMA 1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA 1	W924184
7439-98-7	Molybdenum	52.4	ug/L			P	2.3	OPTIMA 1	W924184
7440-09-7	Potassium	7540	ug/L			P	69.0	OPTIMA 1	W924184
7782-49-2	Selenium	16.8	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	64300	ug/L			P	41.0	OPTIMA 1	W924184
7440-62-2	Vanadium	47.5	ug/L			P	0.48	OPTIMA 1	W924184
7440-66-6	Zinc	14.9	ug/L			P	1.9	OPTIMA 1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

*Jsl
8/17/2009*

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-07

Client ID: 90029

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	98900	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	38200	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	8.2	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	8320	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	1.6	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	72200	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	1.8	ug/L	J		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	3.5	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSJ
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-08

Client ID: 90030

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	94600	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	36800	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	9.2	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	8040	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	1.7	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	69500	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	2.1	ug/L	J		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	2.8	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Jst
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-09

Client ID: 90031

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	109000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	44700	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	18.7	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	195	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	5110	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	4.8	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	36200	ug/l.			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	438	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	4.1	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

jsl
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-10

Client ID: 90033

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	143000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	87300	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	9.5	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	6720	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	3.9	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	27200	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	1.7	ug/L	J		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	2.6	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JS1
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-11

Client ID: 90034

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	964	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	263000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	125000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	707	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	242	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	31400	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	230	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	57700	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	46.0	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	4190	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

jsl
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-12

Client ID: 90035

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	2.8	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	129000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	168000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	445	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	25.8	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	17900	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	0.60	ug/L	U	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	46300	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	0.73	ug/L	J		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	40.3	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSL
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-13

Client ID: 90036

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	82700	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	82000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	207	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	10.3	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	9210	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	0.60	ug/L	U	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	23400	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	1.4	ug/L	J		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	3.8	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-14

Client ID: 90037

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	7.9	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	131000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	68900	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	47.9	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	8910	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	24.6	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	268000	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	37.7	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	26.6	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSI
8/17/2009

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-15

Client ID: 90038

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	7.4	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	135000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	69700	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	49.4	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	9010	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	24.6	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	269000	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	38.3	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	27.1	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JS1
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-16

Client ID: 90039

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	8.9	ug/L			P	0.96	OPTIMA I	W924184
7440-70-2	Calcium	133000	ug/L			P	18.0	OPTIMA I	W924184
7439-95-4	Magnesium	68900	ug/L			P	15.0	OPTIMA I	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA I	W924184
7439-98-7	Molybdenum	49.8	ug/L			P	2.3	OPTIMA I	W924184
7440-09-7	Potassium	8930	ug/L			P	69.0	OPTIMA I	W924184
7782-49-2	Selenium	24.1	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	265000	ug/L			P	41.0	OPTIMA I	W924184
7440-62-2	Vanadium	37.5	ug/L			P	0.48	OPTIMA I	W924184
7440-66-6	Zinc	26.5	ug/L			P	1.9	OPTIMA I	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSJ
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-17

Client ID: 90040

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	0.96	ug/L	U		P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	86200	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	78200	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	183	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	13.1	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	9060	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	1.6	ug/L	J	D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	37400	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	3.8	ug/L	J		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	4.0	ug/L	J		P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

1/51
5/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-18

Client ID: 90041

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	2.7	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	122000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	140000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	29.9	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	25.4	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	13000	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	23.1	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	41000	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	4.0	ug/L	J		P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	65.7	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

*SVL
8/17/2009*

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-19

Client ID: 90042

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	10.8	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	170000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	128000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	148	ug/L			P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	84.2	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	25100	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	252	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	87700	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	18.8	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	201	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

JSL
8/17/09

- 1 -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES SDG No.: W9F0137 Method Type: _____

Sample ID: W9F0137-20

Client ID: 90043

Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Matrix: WATER Date Received: 06/04/2009 Level: LOW

% Solids: _____ Total/Dissolved: _____ TOTAL RECOVERABLE

CAS No.	Analyte	Concentration	Units	C	Qual	M	DL	Instrument ID	Analytical Run
7440-43-9	Cadmium	16.3	ug/L			P	0.96	OPTIMA1	W924184
7440-70-2	Calcium	163000	ug/L			P	18.0	OPTIMA1	W924184
7439-95-4	Magnesium	131000	ug/L			P	15.0	OPTIMA1	W924184
7439-96-5	Manganese	1.3	ug/L	U		P	1.3	OPTIMA1	W924184
7439-98-7	Molybdenum	78.5	ug/L			P	2.3	OPTIMA1	W924184
7440-09-7	Potassium	23300	ug/L			P	69.0	OPTIMA1	W924184
7782-49-2	Selenium	256	ug/L		D	MS	0.60	PE ICPMS DRC-E	174E
7440-23-5	Sodium	87200	ug/L			P	41.0	OPTIMA1	W924184
7440-62-2	Vanadium	15.9	ug/L			P	0.48	OPTIMA1	W924184
7440-66-6	Zinc	229	ug/L			P	1.9	OPTIMA1	W924184

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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5/17/09



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ne Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90023**

SVL Sample ID: **W9F0137-01 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 16:30
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.346	mg/L	0.030	0.010		W925135	DKG	06/23/09 13:37	
PA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:52	
M 2320B	Bicarbonate	1170	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:15	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:15	
M 2320B	Total Alkalinity	1170	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:15	
M 2540 C	Total Diss. Solids	1150	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.46	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	16.2	mg/L	5.00	1.25	25	W925112	EML	06/17/09 19:52	D2
PA 300.0	Fluoride	< 0.100	mg/L	0.100	0.023		W925112	EML	06/17/09 19:42	
PA 300.0	Sulfate as SO4	61.1	mg/L	7.50	0.90	25	W925112	EML	06/17/09 19:52	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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5/17/09



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ne Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: **24-Jun-09 09:18**

Client Sample ID: **90024**

SVL Sample ID: **W9F0137-02 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 29-May-09 17:30

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.883	mg/L	0.030	0.010		W925135	DKG	06/23/09 13:42	
PA 353.2	Nitrate/Nitrite as N	4.96	mg/L	0.500	0.0160	10	W925193	DKG	06/18/09 12:37	D2
M 2320B	Bicarbonate	509	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:24	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:24	
M 2320B	Total Alkalinity	509	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:24	
M 2540 C	Total Diss. Solids	1560	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.50	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	297	mg/L	10.0	2.50	50	W925112	EML	06/17/09 20:42	D2
PA 300.0	Fluoride	1.98	mg/L	0.100	0.023		W925112	EML	06/17/09 20:02	
PA 300.0	Sulfate as SO4	435	mg/L	3.00	0.36	10	W925112	EML	06/17/09 20:12	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

jsl
5002/F18
8/17/2009



ne Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90025**

SVL Sample ID: **W9F0137-03 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 30-May-09 09:45
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925135	DKG	06/23/09 13:43	
PA 353.2	Nitrate/Nitrite as N	19.3	mg/L	0.500	0.0160	10	W925193	DKG	06/18/09 12:42	D2
M 2320B	Bicarbonate	414	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:32	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:32	
M 2320B	Total Alkalinity	414	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:32	
M 2540 C	Total Diss. Solids	2520	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	4.96	mg/L	0.05	0.01	5	W925328	SM	06/19/09 11:02	D2
Anions by Ion Chromatography										
PA 300.0	Chloride	446	mg/L	20.0	5.00	100	W925112	EML	06/17/09 21:12	D2
PA 300.0	Fluoride	2.92	mg/L	0.100	0.023		W925112	EML	06/17/09 20:52	
PA 300.0	Sulfate as SO4	860	mg/L	30.0	3.60	100	W925112	EML	06/17/09 21:12	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
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(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90026**

SVL Sample ID: **W9F0137-04 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 30-May-09 11:00
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925135	DKG	06/23/09 13:45	
PA 353.2	Nitrate/Nitrite as N	11.9	mg/L	0.500	0.0160	10	W925193	DKG	06/18/09 12:43	D2
M 2320B	Bicarbonate	459	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:38	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:38	
M 2320B	Total Alkalinity	459	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:38	
M 2540 C	Total Diss. Solids	1980	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	9.80	mg/L	0.10	0.03	10	W925328	SM	06/19/09 11:02	D2
Anions by Ion Chromatography										
PA 300.0	Chloride	310	mg/L	10.0	2.50	50	W925112	EML	06/17/09 21:42	D2
PA 300.0	Fluoride	5.68	mg/L	0.100	0.023		W925112	EML	06/17/09 21:22	
PA 300.0	Sulfate as SO4	654	mg/L	15.0	1.80	50	W925112	EML	06/17/09 21:42	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: **24-Jun-09 09:18**

Client Sample ID: **90027**

Sampled: 30-May-09 12:15

SVL Sample ID: **W9F0137-05 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925135	DKG	06/23/09 13:46	
PA 353.2	Nitrate/Nitrite as N	4.23	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:30	
M 2320B	Bicarbonate	431	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:49	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:49	
M 2320B	Total Alkalinity	431	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:49	
M 2540 C	Total Diss. Solids	556	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.09	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	13.1	mg/L	5.00	1.25	25	W925112	EML	06/17/09 22:02	D2
PA 300.0	Fluoride	0.259	mg/L	0.100	0.023		W925112	EML	06/17/09 21:52	
PA 300.0	Sulfate as SO4	66.8	mg/L	7.50	0.90	25	W925112	EML	06/17/09 22:02	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
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ne Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90028**

SVL Sample ID: **W9F0137-06 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 30-May-09 12:45
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925135	DKG	06/23/09 13:47	
PA 353.2	Nitrate/Nitrite as N	4.27	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:31	
M 2320B	Bicarbonate	436	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:56	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:56	
M 2320B	Total Alkalinity	436	mg/L	1.0	0.3		W923309	DKS	06/08/09 12:56	
M 2540 C	Total Diss. Solids	848	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.46	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	92.2	mg/L	5.00	1.25	25	W925112	EML	06/17/09 23:22	D2
PA 300.0	Fluoride	0.491	mg/L	0.100	0.023		W925112	EML	06/17/09 23:12	
PA 300.0	Sulfate as SO4	161	mg/L	7.50	0.90	25	W925112	EML	06/17/09 23:22	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90029**

SVL Sample ID: **W9F0137-07 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 30-May-09 14:25
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	4.67	mg/L	0.090	0.028	3	W925135	DKG	06/23/09 14:14	D2
PA 353.2	Nitrate/Nitrite as N	3.94	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:32	
M 2320B	Bicarbonate	411	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:03	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:03	
M 2320B	Total Alkalinity	411	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:03	
M 2540 C	Total Diss. Solids	588	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.06	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	35.0	mg/L	5.00	1.25	25	W925112	EML	06/17/09 23:42	D2
PA 300.0	Fluoride	0.272	mg/L	0.100	0.023		W925112	EML	06/17/09 23:32	
PA 300.0	Sulfate as SO4	89.8	mg/L	7.50	0.90	25	W925112	EML	06/17/09 23:42	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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(208) 784-1258

Fax (208) 783-0891

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18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90030**

SVL Sample ID: **W9F0137-08 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 30-May-09 14:30

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	4.92	mg/L	0.090	0.028	3	W925135	DKG	06/23/09 14:15	D2
PA 353.2	Nitrate/Nitrite as N	3.94	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:33	
M 2320B	Bicarbonate	431	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:10	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:10	
M 2320B	Total Alkalinity	431	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:10	
M 2540 C	Total Diss. Solids	588	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.07	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	30.9	mg/L	5.00	1.25	25	W925112	EML	06/18/09 00:03	D2
PA 300.0	Fluoride	0.275	mg/L	0.100	0.023		W925112	EML	06/17/09 23:53	
PA 300.0	Sulfate as SO4	90.2	mg/L	7.50	0.90	25	W925112	EML	06/18/09 00:03	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

jsl
8/17/09



ne Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90031**

SVL Sample ID: **W9F0137-09 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 30-May-09 14:55
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	3.97	mg/L	0.060	0.019	2	W925135	DKG	06/23/09 14:17	D2
PA 353.2	Nitrate/Nitrite as N	5.37	mg/L	0.500	0.0160	10	W925193	DKG	06/18/09 12:48	D2
M 2320B	Bicarbonate	408	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:16	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:16	
M 2320B	Total Alkalinity	408	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:16	
M 2540 C	Total Diss. Solids	608	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.39	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	35.4	mg/L	5.00	1.25	25	W925112	EML	06/18/09 00:43	D2
PA 300.0	Fluoride	0.254	mg/L	0.100	0.023		W925112	EML	06/18/09 00:13	
PA 300.0	Sulfate as SO4	83.7	mg/L	7.50	0.90	25	W925112	EML	06/18/09 00:43	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JKI
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ne Government Guich - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90033**

Sampled: 30-May-09 16:15
Received: 04-Jun-09
Sampled By: MK

SVL Sample ID: **W9F0137-10 (Ground Water)**

Sample Report Page 1 of 1

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925135	DKG	06/23/09 14:33	
PA 353.2	Nitrate/Nitrite as N	1.33	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:38	
M 2320B	Bicarbonate	681	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:23	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:23	
M 2320B	Total Alkalinity	681	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:23	
M 2540 C	Total Diss. Solids	794	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.16	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	14.9	mg/L	5.00	1.25	25	W925112	EML	06/18/09 01:03	D2
PA 300.0	Fluoride	0.432	mg/L	0.100	0.023		W925112	EML	06/18/09 00:53	
PA 300.0	Sulfate as SO4	68.9	mg/L	7.50	0.90	25	W925112	EML	06/18/09 01:03	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

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18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90034**

Sampled: 30-May-09 16:45

SVL Sample ID: **W9F0137-11 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.513	mg/L	0.030	0.010		W925135	DKG	06/23/09 13:59	
PA 353.2	Nitrate/Nitrite as N	9.37	mg/L	0.500	0.0160	10	W925193	DKG	06/18/09 12:50	D2
M 2320B	Bicarbonate	280	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:30	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:30	
M 2320B	Total Alkalinity	280	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:30	
M 2540 C	Total Diss. Solids	1770	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.73	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	508	mg/L	10.0	2.50	50	W925112	EML	06/18/09 01:33	D2
PA 300.0	Fluoride	9.29	mg/L	1.00	0.230	10	W925112	EML	06/18/09 01:23	D2
PA 300.0	Sulfate as SO4	317	mg/L	3.00	0.36	10	W925112	EML	06/18/09 01:23	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSF
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(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90035**

SVL Sample ID: **W9F0137-12 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 30-May-09 17:30

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.685	mg/L	0.030	0.010		W925135	DKG	06/23/09 14:02	
PA 353.2	Nitrate/Nitrite as N	< 0.0500	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:39	
M 2320B	Bicarbonate	978	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:36	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:36	
M 2320B	Total Alkalinity	978	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:36	
M 2540 C	Total Diss. Solids	1120	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.40	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	28.0	mg/L	1.00	0.250	5	W925112	EML	06/18/09 01:53	D2
PA 300.0	Fluoride	0.832	mg/L	0.100	0.023		W925112	EML	06/18/09 01:43	
PA 300.0	Sulfate as SO4	113	mg/L	1.50	0.18	5	W925112	EML	06/18/09 01:53	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSI
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ne Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90036**

Sampled: 31-May-09 09:45

SVL Sample ID: **W9F0137-13 (Ground Water)**

Sample Report Page 1 of 1

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.141	mg/L	0.030	0.010		W925135	DKG	06/23/09 14:03	
PA 353.2	Nitrate/Nitrite as N	0.400	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:40	
M 2320B	Bicarbonate	531	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:49	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:49	
M 2320B	Total Alkalinity	531	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:49	
M 2540 C	Total Diss. Solids	579	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.12	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	11.5	mg/L	0.200	0.050		W925112	EML	06/18/09 02:13	
PA 300.0	Fluoride	0.389	mg/L	0.100	0.023		W925112	EML	06/18/09 02:13	
PA 300.0	Sulfate as SO4	42.8	mg/L	0.30	0.04		W925112	EML	06/18/09 02:13	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
8/17/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: **24-Jun-09 09:18**

Client Sample ID: **90037**

SVL Sample ID: **W9F0137-14 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 10:00
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.115	mg/L	0.030	0.010		W925135	DKG	06/23/09 14:05	
PA 353.2	Nitrate/Nitrite as N	3.91	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:41	
M 2320B	Bicarbonate	454	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:56	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:56	
M 2320B	Total Alkalinity	454	mg/L	1.0	0.3		W923309	DKS	06/08/09 13:56	
M 2540 C	Total Diss. Solids	1370	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	1.28	mg/L	0.02	0.005	2	W925328	SM	06/19/09 11:02	D2
Anions by Ion Chromatography										
PA 300.0	Chloride	397	mg/L	10.0	2.50	50	W925112	EML	06/18/09 11:00	D2
PA 300.0	Fluoride	0.324	mg/L	0.100	0.023		W925112	EML	06/18/09 10:40	
PA 300.0	Sulfate as SO4	165	mg/L	3.00	0.36	10	W925112	EML	06/18/09 10:50	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

151
5/17/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90038**

SVL Sample ID: **W9F0137-15 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 10:00

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.100	mg/L	0.030	0.010		W925136	DKG	06/23/09 13:02	
PA 353.2	Nitrate/Nitrite as N	3.93	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:42	
M 2320B	Bicarbonate	449	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:03	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:03	
M 2320B	Total Alkalinity	449	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:03	
M 2540 C	Total Diss. Solids	1350	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500 P-E	Phosphorus	1.28	mg/L	0.02	0.005	2	W925328	SM	06/19/09 11:02	D2
Anions by Ion Chromatography										
PA 300.0	Chloride	391	mg/L	10.0	2.50	50	W925112	EML	06/18/09 11:30	D2
PA 300.0	Fluoride	1.02	mg/L	0.100	0.023		W925112	EML	06/18/09 11:10	
PA 300.0	Sulfate as SO4	166	mg/L	3.00	0.36	10	W925112	EML	06/18/09 11:20	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSL
8/17/09



1800 Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

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Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90039**

SVL Sample ID: **W9F0137-16 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 10:00
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.101	mg/L	0.030	0.010		W925136	DKG	06/23/09 13:06	Q13 J
PA 353.2	Nitrate/Nitrite as N	3.95	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:43	Q13 J
M 2320B	Bicarbonate	447	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:09	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:09	
M 2320B	Total Alkalinity	447	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:09	
M 2540 C	Total Diss. Solids	1350	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	1.29	mg/L	0.02	0.005	2	W925328	SM	06/19/09 11:02	D2
Anions by Ion Chromatography										
PA 300.0	Chloride	388	mg/L	10.0	2.50	50	W925112	EML	06/18/09 14:10	D2
PA 300.0	Fluoride	1.01	mg/L	0.100	0.023		W925112	EML	06/18/09 11:40	
PA 300.0	Sulfate as SO4	167	mg/L	15.0	1.80	50	W925112	EML	06/18/09 14:10	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSI
8/17/09



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Inc Government Gulch - PO Box 929

Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90040**

SVL Sample ID: **W9F0137-17 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 10:15

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.096	mg/L	0.030	0.010		W925136	DKG	06/23/09 13:07	
PA 353.2	Nitrate/Nitrite as N	0.834	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:44	
M 2320B	Bicarbonate	510	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:15	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:15	
M 2320B	Total Alkalinity	510	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:15	
M 2540 C	Total Diss. Solids	601	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.17	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	30.8	mg/L	5.00	1.25	25	W925112	EML	06/18/09 12:20	D2
PA 300.0	Fluoride	0.373	mg/L	0.100	0.023		W925112	EML	06/18/09 12:10	
PA 300.0	Sulfate as SO4	48.5	mg/L	0.30	0.04		W925112	EML	06/18/09 12:10	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSI
8/17/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: **24-Jun-09 09:18**

Client Sample ID: **90041**

SVL Sample ID: **W9F0137-18 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 11:05

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925136	DKG	06/23/09 13:09	
PA 353.2	Nitrate/Nitrite as N	1.57	mg/L	0.0500	0.0016		W925193	DKG	06/18/09 13:45	
M 2320B	Bicarbonate	834	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:22	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:22	
M 2320B	Total Alkalinity	834	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:22	
M 2540 C	Total Diss. Solids	898	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.18	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	13.7	mg/L	5.00	1.25	25	W925112	EML	06/18/09 13:00	D2
PA 300.0	Fluoride	0.917	mg/L	0.100	0.023		W925112	EML	06/18/09 12:50	
PA 300.0	Sulfate as SO4	61.3	mg/L	7.50	0.90	25	W925112	EML	06/18/09 13:00	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JST
6/19/09



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One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Golder Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90042**

SVL Sample ID: **W9F0137-19 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 11:30

Received: 04-Jun-09

Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	0.078	mg/L	0.030	0.010		W925136	DKG	06/23/09 13:10	
PA 353.2	Nitrate/Nitrite as N	7.50	mg/L	0.500	0.0160	10	W925193	DKG	06/18/09 13:03	D2
M 2320B	Bicarbonate	444	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:31	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:31	
M 2320B	Total Alkalinity	444	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:31	
M 2540 C	Total Diss. Solids	1380	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.99	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	
Anions by Ion Chromatography										
PA 300.0	Chloride	110	mg/L	5.00	1.25	25	W925112	EML	06/18/09 13:20	D2
PA 300.0	Fluoride	4.19	mg/L	0.100	0.023		W925112	EML	06/18/09 13:10	
PA 300.0	Sulfate as SO4	461	mg/L	7.50	0.90	25	W925112	EML	06/18/09 13:20	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSI
8/17/09



276

One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Goldcr Associates (WA)
18300 NE Union Hill Road, Suite 200
Redmond, WA 98052-3333

Project Name: **Monsanto Level 3**
Work Order: **W9F0137**
Reported: 24-Jun-09 09:18

Client Sample ID: **90043**

SVL Sample ID: **W9F0137-20 (Ground Water)**

Sample Report Page 1 of 1

Sampled: 31-May-09 11:50
Received: 04-Jun-09
Sampled By: MK

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Classical Chemistry Parameters										
PA 350.1	Ammonia as N	< 0.030	mg/L	0.030	0.010		W925136	DKG	06/23/09 13:11	
PA 353.2	Nitrate/Nitrite as N	9.05	mg/L	0.500	0.0160	10	W925193	DKG	06/18/09 13:04	D2
M 2320B	Bicarbonate	443	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:38	
M 2320B	Carbonate	< 1.0	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:38	
M 2320B	Total Alkalinity	443	mg/L	1.0	0.3		W923309	DKS	06/08/09 14:38	
M 2540 C	Total Diss. Solids	1440	mg/L	10	4		W923277	AGF	06/05/09 11:53	
M 4500-P-E	Phosphorus	0.31	mg/L	0.01	0.003		W925328	SM	06/19/09 11:02	

Anions by Ion Chromatography

PA 300.0	Chloride	119	mg/L	10.0	2.50	50	W925112	EML	06/18/09 13:40	D2
PA 300.0	Fluoride	4.03	mg/L	0.100	0.023		W925112	EML	06/18/09 13:30	
PA 300.0	Sulfate as SO4	466	mg/L	15.0	1.80	50	W925112	EML	06/18/09 13:40	D2

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

Kirby Gray
Technical Director

JSI
8/17/09

ATTACHMENT 4
LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION



Analytical Resources, Incorporated
Analytical Chemists and Consultants

19 June 2009

Michael Klisch
Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052-3333

Re: Project: 913-1101.605A/Monsanto
ARI Job No: PB30

Dear Michael:

Please find enclosed original chain of custody record and the final results for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted five water samples in good condition on June 4, 2009. There were no discrepancies between the COC and the sample container's labels. The samples were analyzed for total metals and conventional parameters as requested.

A matrix spike (MS) was prepared and analyzed for total phosphorous in conjunction with sample 90003. Total phosphorous was not recovered following the initial analysis of the MS. Since the percent recovery for total phosphorous was within acceptable QC limits for the corresponding SRM, it was concluded that the sample matrix was the cause of the poor MS recovery. No corrective actions were taken.

No further analytical complications were noted for these samples.

A copy of these reports and all associated raw data will remain on file at ARI. If you have any questions or require any additional information please contact me at your convenience.

Respectfully,

ANALYTICAL RESOURCES, INC.


Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: file PB30

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)

ARI Assigned Number: 2030		Turn-around Requested: Steam dist		Page: 1 of 1							
ARI Client Company: Golden Assoc		Phone: 425/883 0777		Date: 6/3/09	Ice Present? Yes						
Client Contact: Michael Kusch		No. of Coolers: 1		Cooling Temps: 5 d							
Client Project Name: Mon Santo		Analysis Requested				Notes/Comments					
Client Project #: 913-11A-605 A		<table border="1" style="width:100%; text-align: center;"> <tr> <td>Metals</td> <td>Alk</td> <td>NO₂/NO₃ N/H₃</td> <td>Anions</td> <td></td> <td></td> </tr> </table>					Metals	Alk	NO ₂ /NO ₃ N/H ₃	Anions	
Metals	Alk	NO ₂ /NO ₃ N/H ₃	Anions								
Samplers: Michael Kusch / F. Vasquez											
Sample ID	Date	Time	Matrix	No. Containers							
90003	5/28/09	1815	EW	4							
96611	5/29/09	1020									
90032	5/30/09	1955									
90056	6/1/09	1750									
70070	6/2/09	1940									
Comments/Special Instructions		Relinquished by: (Signature) Michael Kusch	Received by: (Signature) Jonathan Walter		Relinquished by: (Signature)	Received by: (Signature)					
		Printed Name: Michael Kusch	Printed Name: Jonathan Walter		Printed Name:	Printed Name:					
		Company: GAI	Company: ARI		Company:	Company:					
		Date & Time: 6/3/09 10:00	Date & Time: 6/4/09 10/0		Date & Time:	Date & Time:					

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Golder Assa

Project Name: Monsanto

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: PB30

Tracking No: 86360822001 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... 5.4

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 101686

Cooler Accepted by: JW Date: 6/4/09 Time: 1010

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Samples Logged by: AV Date: 6/4/09 Time: 1245

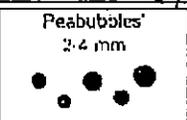
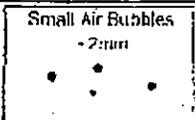
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

90011 has 2 bottles for metals, and no bottle for NO₂+NO₃/NH₃ poured sample from unpreserved bottle and preserved for NO₂+NO₃/NH₃ analysis

By: AV Date: 6/4/09



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"



ARI Job No: PB30

PC: Mark

VTSR: 06/04/09

Inquiry Number: NONE
 Analysis Requested: 06/04/09
 Contact: Klisch, Michael
 Client: Golder Associates Inc.
 Logged by: AV
 Sample Set Used: Yes-482
 Validatable Package: No
 Deliverables:

Project #: 913-1101.605A
 Project: MONSANTO
 Sample Site:
 SDG No:
 Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
09-12703 PB30A	90003			OK			TOT OK		OK		OK										
09-12704 PB30B	90011			OK			TOT OK		OK		OK										
09-12705 PB30C	90032			OK			TOT OK		OK		OK										
09-12706 PB30D	90056			OK			TOT OK		OK		OK										
09-12707 PB30E	90070			OK			TOT OK		OK		OK										

Checked By AV Date 6/4/09

913-119-605A

Page 1

GOLDER ASSOCIATES

PROJECT: MONSANTO

SVL/SDG: W9F0136

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NARRATIVE

GOLDER ASSOCIATES

PROJECT NAME: MONSANTO

SVL/SDG: W9F0136

Samples received June 4, 2009.

“D” flag represents a dilution was required.

“H3” flag represents the sample was received and analyzed past holding time.

“Q13” flag represents the sample was received and analyzed with pH >2.

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES
 SDG No.: W9F0136 Method Type: _____ SOW No.: _____
 Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W924028-MS1	90001S	Matrix Spike
W924028-MSD1	90001SD	Matrix Spike Duplicate
W924183-MS1	90002S	Matrix Spike
W924183-MSD1	90002SD	Matrix Spike Duplicate
W9F0136-01	90001	
W9F0136-02	90002	
W9F0136-03	90004	
W9F0136-04	90005	
W9F0136-05	90006	
W9F0136-06	90007	
W9F0136-07	90008	
W9F0136-08	90009	
W9F0136-09	90010	
W9F0136-10	90011	

Were ICP interelement corrections applied? Yes/No Yes _____
 Were ICP background corrections applied? Yes/No Yes _____
 If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:  Name: KIRBY L. GRAY
 Date: 06/23/2009 Title: TECHNICAL DIRECTOR

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES

SDG No.: W9F0136

Method Type: _____

SOW No.: _____

Contract: _____

Lab Code: SVL

Case No.: _____

SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W9F0136-11	90013	
W9F0136-12	90014	
W9F0136-13	90015	
W9F0136-14	90016	
W9F0136-15	90017	
W9F0136-16	90018	
W9F0136-17	90019	
W9F0136-18	90020	
W9F0136-19	90021	
W9F0136-20	90022	

Were ICP interelement corrections applied? Yes/No Yes _____

Were ICP background corrections applied? Yes/No Yes _____

If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: *Kirby L. Gray*

Name: KIRBY L. GRAY

Date: 06/23/2009

Title: TECHNICAL DIRECTOR

286



CHAIN OF CUSTODY RECORD

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W9F0136

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SVL JOB #

REM of Receipt: 5.8.09

Report to Company: <u>Golder Assoc. Inc</u> Contact: <u>Michael Klische</u> Address: <u>14300 NE Union Hill Rd</u> <u>Suite 200, Redmond, WA 98072</u> Phone Number: <u>425 883 0777</u> FAX Number: <u>425 882 5498</u> E-mail: <u>m.klische@golder.com</u>	Invoice Sent To: <u>Same</u> Contact: _____ Address: _____ Phone Number: _____ FAX Number: _____ PO#: _____
--	--

Table 1. - Matrix Type

1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
 6 = Waste, 7 = Other

Project Name: _____
Sampler's Signature: _____

Indicate State of sample origination: IO USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)							Analyses Required	Rush Instructions (Days)	Comments		
	Date	Time		Collected by: (init.)	Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl				H ₂ SO ₄	NaOH
1	90001	5/28/09 1800 ML	23												
2	90002	5/28/09 1815													
3	90004	5/28/09 1845													
4	90005	5/28/09 1905													
5	90006	5/28/09 1910													
6	90007	5/28/09 1920													
7	90008	5/28/09 2010													
8	90009	5/28/09 1830													
9	90010	5/29/09 920													
10	90011	5/29/09 1020													

Relinquished by: Michael Klische Date: 6/7/09 Time: 1000 Received by: [Signature] Date: 6/4/09 Time: 14:00
 Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

* Sample Reject: Return Dispose Store (30 Days)

White: LAB COPY Yellow: CUSTOMER COPY

* TIME ON SAMPLE ID READS 20:10
 [Signature] 6/4/09

182



CHAIN OF CUSTODY RECORD

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W99F0136
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SVL JOB #
TEMP on Receipt: 7.7°C

Report to Company: <u>Golden Assoc. IN</u>	Invoice Sent To: <u>Same</u>
Contact: <u>Michael Klisch</u>	Contact: _____
Address: <u>18300NE Union Hill Rd, Ste 200</u>	Address: _____
<u>Redmond WA 98052</u>	Address: _____
Phone Number: <u>425/883 0777</u>	Phone Number: _____
FAX Number: <u>425/882 5448</u>	FAX Number: _____
E-mail: <u>mklisch@golden.com</u>	PO#: _____

Table 1. - Matrix Type

1 = Surface Water, 2 = Ground Water

3 = Soil/Sediment, 4 = Rinse, 5 = Oil

6 = Waste, 7 = Other

Project Name: Monsanto

Sampler's Signature: Michael Klisch

Indicate State of sample origination: ±0 USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)								Analyses Required	Rush Instructions (Days)	Comments	
	Date	Time		Collected by: (Init.)	Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ , Filtered	HNO ₃ , Unfiltered	HCl	H ₂ SO ₄				NaOH
1 90013	5/24/04	10:20 AM	2 3		1										
2 90014	"	10:25													
3 90015	"	11:40													
4 90016	"	12:45													
5 90017	"	1:30													
6 90018	"	1:40													
7 90019	"	1:45													
8 90020	"	1:45													
9 90021	"	1:55													
10 90022	"	1:60													

Relinquished by: <u>Michael Klisch</u>	Date: <u>5/23/04</u>	Time: <u>10:00</u>	Received by: <u>[Signature]</u>	Date: <u>6/4/04</u>	Time: <u>14:00</u>
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____

913-1101-605A

GOLDER ASSOCIATES

PROJECT: MONSANTO

SVL/SDG: W9F0137

<u>DOCUMENT</u>	<u>PAGE NUMBERS</u>	
COVER PAGE	1	1
NARRATIVE	2	2
DATA REPORT FORMS	3	59
RAW DATA	60	236
PREPARATION LOGS	237	240
AIR BILL	241	242
CHAIN OF CUSTODY	243	244
SAMPLE LOG-IN	245	246
COVER SHEET	247	247
COOLER RECEIPT FORMS	248	248
RUN LOGS	249	251
CONFIRMATION	252	255

NON-METALS

DATA REPORT FORMS	256	278
RAW DATA	279	478

NARRATIVE

GOLDER ASSOCIATES

PROJECT NAME: MONSANTO

SVL/SDG: W9F0137

Samples received June 4, 2009.

“D” flag represents a dilution was required.

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES
 SDG No.: W9F0137 Method Type: _____ SOW No.: _____
 Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W924033-MS1	90023S	Matrix Spike
W924033-MSD1	90023SD	Matrix Spike Duplicate
W924184-MS1	90024S	Matrix Spike
W924184-MSD1	90024SD	Matrix Spike Duplicate
W9F0137-01	90023	
W9F0137-02	90024	
W9F0137-03	90025	
W9F0137-04	90026	
W9F0137-05	90027	
W9F0137-06	90028	
W9F0137-07	90029	
W9F0137-08	90030	
W9F0137-09	90031	
W9F0137-10	90033	

Were ICP interelement corrections applied? Yes/No Yes _____
 Were ICP background corrections applied? Yes/No Yes _____
 If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:  Name: KIRBY L. GRAY
 Date: 06/23/2009 Title: TECHNICAL DIRECTOR

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES
 SDG No.: W9F0137 Method Type: _____ SOW No.: _____
 Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W9F0137-11	90034	
W9F0137-12	90035	
W9F0137-13	90036	
W9F0137-14	90037	
W9F0137-15	90038	
W9F0137-16	90039	
W9F0137-17	90040	
W9F0137-18	90041	
W9F0137-19	90042	
W9F0137-20	90043	

Were ICP interelement corrections applied? Yes/No Yes _____
 Were ICP background corrections applied? Yes/No Yes _____
 If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:  Name: KIRBY L. GRAY
 Date: 06/23/2009 Title: TECHNICAL DIRECTOR

hhe



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W9F0137

FOR SVL USE ONLY
SVL JOB #

TEMP on Receipt: 5.9°C

Report to Company: Golden Assoc. Inc
 Contact: Michelle Klisch
 Address: 18300 NE Orient Hill Rd.
Suite 200 Redmond WA 98052
 Phone Number: 425/8830777
 FAX Number: 425 882 5498
 E-mail: mklisch@golder.com

Invoice Sent To: Same
 Contact: _____
 Address: _____
 Phone Number: _____
 FAX Number: _____
 PO#: _____

Table 1. - Matrix Type

1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
 6 = Waste, 7 = Other

Project Name: Monsanto
 Sampler's Signature: [Signature]

Indicate State of sample origination: FD USACE? Yes No

Sample ID	Collection		Misc.		Preservative(s)							Analyses Required	Rush Instructions (Days)	Comments	
	Date	Time	Collected by: (Init.)	Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl	H ₂ SO ₄	NaOH				Other (Specify)
1 90034	5/30/09	1645	MK	23	1		1		1						
2 90035	"	1730													
3 90036	5/31/09	945													
4 90037		1000													
5 90038		1000													
6 90039		1000													
7 90040		1045													
8 90041		1105													
9 90042		1130													
10 90043		1150													

Notes: Met Cs, Arsenic, NO₂, NO₃, NH₃

Requisitioned by: [Signature] Date: 6/2/09 Time: 10:00 Received by: [Signature] Date: 6/4/09 Time: 14:00
 Requisitioned by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____

GOLDER ASSOCIATES

PROJECT: MONSANTO

SVL/SDG: W9F0140

<u>DOCUMENT</u>	<u>PAGE NUMBERS</u>	
COVER PAGE	1	1
NARRATIVE	2	2
DATA REPORT FORMS	3	74
RAW DATA	75	272
PREPARATION LOGS	273	276
AIR BILL	277	278
CHAIN OF CUSTODY	279	280
SAMPLE LOG-IN	281	281
COVER SHEET	282	282
COOLER RECIEPT FORMS	283	283
RUN LOGS	284	286
CONFIRMATION	287	297
 <u>NON-METALS</u>		
DATA REPORT FORMS	298	319
RAW DATA	320	484

NARRATIVE

GOLDER ASSOCIATES

PROJECT NAME: MONSANTO

SVL/SDG: W9F0140

Samples received June 4, 2009.

“D” flag represents a dilution was required.

“H6” flag represents the initial analysis was within holding time. The reanalysis was run past holding time.

“E” flag is reported on Forms 1 and 9.

“E” flag represents the serial dilution was 10% or above and the reported value on Form 1 (QC Sample) was 50 times greater than the MDL reported on Form 10.

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES
SDG No.: W9F0140 Method Type: _____ SOW No.: _____
Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W924031-MS1	90044S	Matrix Spike
W924031-MSD1	90044SD	Matrix Spike Duplicate
W924185-MS1	90045S	Matrix Spike
W924185-MSD1	90045SD	Matrix Spike Duplicate
W9F0140-01	90044	
W9F0140-02	90045	
W9F0140-03	90046	
W9F0140-04	90047	
W9F0140-05	90048	
W9F0140-06	90049	
W9F0140-07	90050	
W9F0140-08	90051	
W9F0140-09	90052	
W9F0140-10	90053	

Were ICP interelement corrections applied? Yes/No Yes _____
Were ICP background corrections applied? Yes/No Yes _____
If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: *Kirby L. Gray* Name: KIRBY L. GRAY
Date: 06/23/2009 Title: TECHNICAL DIRECTOR

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES

SDG No.: W9F0140

Method Type: _____

SOW No.: _____

Contract: _____

Lab Code: SVL

Case No.: _____

SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W9F0140-11	90054	
W9F0140-12	90055	
W9F0140-13	90057	
W9F0140-14	90058	
W9F0140-15	90059	
W9F0140-16	90060	
W9F0140-17	90061	
W9F0140-18	90062	

Were ICP interelement corrections applied? Yes/No Yes _____

Were ICP background corrections applied? Yes/No Yes _____

If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

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Signature: *Kirby L. Gray*

Name: KIRBY L. GRAY

Date: 06/23/2009

Title: TECHNICAL DIRECTOR

619



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Page 1 of 1

W9FO140

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SVL JOB #

TEMP on Receipt: 5.7°C

Table 1. - Matrix Type
1 = Surface Water, 2 = Ground Water
3 = Soil/Sediment, 4 = Rinseate, 5 = Oil
6 = Waste, 7 = Other

Report to Company: <u>Golden Assoc. Inc</u>	Invoice Sent To: <u>Same</u>
Contact: <u>Michael Klisch</u>	Contact: _____
Address: <u>18300 NE Union Hill Rd</u>	Address: _____
<u>Ste 200, Redmond WA 98052</u>	Address: _____
Phone Number: <u>425 883 6777</u>	Phone Number: _____
FAX Number: <u>425 882 5498</u>	FAX Number: _____
E-mail: <u>m.klisch@golden.com</u>	PO#: _____

Project Name: Monsanto
Sampler's Signature: Michael Klisch

Indicate State of sample origination: ID USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)							Analyses Required	Rush Instructions (Days)	Comments				
	Date	Time		Collected by: (Init.)	Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl				H ₂ SO ₄	NaOH	Other (Specify)	
1 90044	5/31/09	1300	MC	2	3	1											
2 90045		1315															
3 90046		1400															
4 90047		1435															
5 90048		1450															
6 90049		1630															
7 90050		1715															
8 90051	6/1/09	9:30															
9 90052		1125															
10 90053		1300															

Relinquished by: <u>[Signature]</u>	Date: <u>6/3/09</u>	Time: <u>10:00</u>	Received by: <u>[Signature]</u>	Date: <u>6/4/09</u>	Time: <u>14:00</u>
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____

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CHAIN OF CUSTODY RECORD

Page 1 of 1

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W9F0140

FOR SVL USE ONLY
SVL JOB #

TEMP on Receipt: 8/10

Report to Company: Golden Assoc.
 Contact: Michael Kirsch
 Address: 18300 NE Union Hill Rd
Ste 200 Redmond WA 98052
 Phone Number: 425/883 0777
 FAX Number: 425/882 5438
 E-mail: m.kirsch@golden.com

Invoice Sent To: Same
 Contact: _____
 Address: _____
 Phone Number: _____
 FAX Number: _____
 PO#: _____

Table 1. - Matrix Type

1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinseate, 5 = Oil
 6 = Waste, 7 = Other

Project Name: Mysanto
 Sampler's Signature: [Signature]

Indicate State of sample origination: ID USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)							Rush Instructions (Days)	Comments			
	Date	Time		Collected by: (Init.)	Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ , Filtered	HNO ₃ , Unfiltered	HCl			H ₂ SO ₄	NaOH	Other (Specify)
1 90054	6/1/09	1450	MKZ	3	/	/									
2 90055		1455													
3 90057		1600													
4 90058		1605													
5 90059		1705													
6 90060		1830													
7 90061		1845													
8 90062	6/2	1125													
9 90063		1520													
10 90064		1630													

Relinquished by: [Signature] Date: 6/3/09 Time: 10:00 Received by: [Signature] Date: 6/4/09 Time: 14:00

* Sample Reject: Return Dispose Store (30 Days) White: LAB COPY Yellow: CUSTOMER COPY

11 90065 6/2/09/1640

9131107.605A

GOLDER ASSOCIATES

PROJECT: MONSANTO

SVL/SDG: W9F0142

<u>DOCUMENT</u>	<u>PAGE NUMBERS</u>	
COVER PAGE	1	1
NARRATIVE	2	2
DATA REPORT FORMS	3	46
RAW DATA	47	197
PREPARATION LOGS	198	201
AIR BILL	202	203
CHAIN OF CUSTODY	204	205
SAMPLE LOG-IN	206	206
COVER SHEET	207	207
COOLER RECIEPT FORMS	208	209
RUN LOGS	210	211
CONFIRMATION	212	217
 <u>NON-METALS</u>		
DATA REPORT FORMS	218	231
RAW DATA	232	381

NARRATIVE

GOLDER ASSOCIATES

PROJECT NAME: MONSANTO

SVL/SDG: W9F0142

Samples analyzed for metals as indicated on chain of custody.

“D” flag represents a dilution was required.

“Q13” flag represents the sample was received and analyzed with pH >2.

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES

SDG No.: W9F0142

Method Type: _____

SOW No.: _____

Contract: _____

Lab Code: SVL

Case No.: _____

SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W924030-MS1	90067S	Matrix Spike
W924030-MSD1	90067SD	Matrix Spike Duplicate
W924186-MS1	90066S	Matrix Spike
W924186-MSD1	90066SD	Matrix Spike Duplicate
W9F0142-02	90066	
W9F0142-03	90067	
W9F0142-04	90068	
W9F0142-05	90069	
W9F0142-06	90071	
W9F0142-07	90072	
W9F0142-08	90073	
W9F0142-09	90074	
W9F0142-10	90075	
W9F0142-11	90076	

Were ICP interelement corrections applied? Yes/No Yes _____

Were ICP background corrections applied? Yes/No Yes _____

If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 

Name: KIRBY L. GRAY

Date: 06/23/2009

Title: TECHNICAL DIRECTOR

- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE

Client: GOLDER ASSOCIATES
SDG No.: W9F0142 Method Type: _____ SOW No.: _____
Contract: _____ Lab Code: SVL Case No.: _____ SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W9F0142-12	90077	

Were ICP interelement corrections applied? Yes/No Yes _____

Were ICP background corrections applied? Yes/No Yes _____

If yes - were raw data generated before applications of background corrections? Yes/No No _____

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:  Name: KIRBY L. GRAY
Date: 06/23/2009 Title: TECHNICAL DIRECTOR

205



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W9F0142

FOR SVL USE ONLY
 SVL JOB #
 TEMP. on Receipt: 9.2°C

Report to Company: Golden
 Contact: Michael Kusch
 Address: 18300 NE Union Hill Rd
Suite 200, Redmond WA 98052
 Phone Number: 425/883 0777
 FAX Number: 425/882 5488
 E-mail: m.kusch@golden.com

Invoice Sent To: Same
 Contact: _____
 Address: _____
 Phone Number: _____
 FAX Number: _____
 PO#: _____

Table 1. - Matrix Type

1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinstate, 5 = Oil
 6 = Waste, 7 = Other _____

Project Name: Monsanto
 Sampler's Signature: [Signature]

Indicate State of sample origination: IO USA? Yes No

Sample ID	Collection		Misc.	Preservative(s)							Analyses Required	Rush Instructions (Days)	Comments	
	Date	Time	Collected by: (Init.)	Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl	H ₂ SO ₄				NaOH
1 90066	6/2/09	1730	MC	2	3	✓	✓	✓					Metals Anions NO ₂ /NO ₃ /NH ₄	
2 90067		1830												
3 90068		1910												
4 90069		1940												
5 90071		200												
6 90072		2010												
7 90073	6/3/09	715												
8 90074		745												
9 90075		800												
10 90076		825												

Relinquished by: [Signature] Date: 6/3/09 Time: 8:00 Received by: [Signature] Date: 6/4/09 Time: 14:00

* Sample Reject: Return Dispose Store (30 Days)
90077 6/3/09 8:00 cc cc cc cc

White: LAB COPY Yellow: CUSTOMER COPY

208



CHAIN OF CUSTODY RECORD

Page 1 of 1

W9F0142

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SVL JOB #

SVL Analytical, Inc. • One Government Gulch • Kellogg, ID 83837 • (208) 784-1258 • FAX: (208) 783-0891

TEMP on Receipt: 8.1°C

Report to Company: <u>Golden Assoc.</u>	Invoice Sent To: <u>Same</u>
Contact: <u>Michael Kirsch</u>	Contact: _____
Address: <u>18300 NE Union Hill Rd</u>	Address: _____
<u>St 200 Redmond WA 98052</u>	Address: _____
Phone Number: <u>425/883 0777</u>	Phone Number: _____
FAX Number: <u>425/882 5438</u>	FAX Number: _____
E-mail: <u>m.kirsch@golden.com</u>	PO#: _____

Table 1. -- Matrix Type

1 = Surface Water, 2 = Ground Water

3 = Soil/Sediment, 4 = Rinsate, 5 = Oil

6 = Waste, 7 = Other _____

Project Name: Mysinko

Sampler's Signature: [Signature]

Indicate State of sample origination: IO USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)							Analyses Required	Rush Instructions (Days)	Comments			
	Date	Time		Collected by: (init.)	Matrix Type (From Table 1)	No. of Containers	Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl				H ₂ SO ₄	NaOH	Other (Specify)
1 90054	6/1/09	1450	MC2 3													
2 90055		1455														
3 90057		1600														
4 90058		1605														
5 90059		1705														
6 90060		1830														
7 90061		1845														
8 90062	6/2	1125														
9 90063		1520														
10 90064		1630														

Relinquished by: [Signature] Date: 6/2/09 Time: 1:00

Received by: [Signature] Date: 6/4/09 Time: 14:00

* Sample Reject: Return Dispose Store (30 Days)

White: LAB COPY, Yellow: CUSTOMER COPY

SVL-COC 9/05

11 90065 6/2/09/1640

COPY

GOLDER ASSOCIATES

PROJECT: MONSANTO

SVL/SDG: W9F0203

<u>DOCUMENT</u>	<u>PAGE NUMBERS</u>	
COVER SHEET	1	1
NARRATIVE	2	2
DATA REPORT FORMS	3	32
RAW DATA	33	140
PREPARATION LOGS	141	144
AIR BILL	145	146
CHAIN OF CUSTODY	147	149
SAMPLE LOG-IN	150	150
COVER SHEET	151	151
COOLER RECIEPT FORMS	152	153
RUN LOGS	154	155
CONFIRMATION	156	157
<u>DRINKING WATER</u>		
REPORT FORMS	158	165

NARRATIVE

GOLDER ASSOCIATES

PROJECT NAME: MONSANTO

SVL/SDG: W9F0203

Samples analyzed for metals as indicated on chain of custody and primary and secondary inorganic drinking water constituent.

MBAS , mercury, and odor was not analyzed due to insufficient sample volume.

“H1” flag indicates the sample analysis was performed past holding time.

“D” flag represents a dilution was required.

**- COVER PAGE -
INORGANIC ANALYSIS DATA PACKAGE**

Client: GOLDER ASSOCIATES

SDG No.: W9F0203

Method Type: _____

SOW No.: _____

Contract: _____

Lab Code: SVL

Case No.: _____

SAS No.: _____

Lab Sample ID	Client Sample ID	QC Description
W924104-MS1	90063S	Matrix Spike
W924104-MSD1	90063SD	Matrix Spike Duplicate
W924119-MS1	90063S	Matrix Spike
W924119-MSD1	90063SD	Matrix Spike Duplicate
W9F0203-01	90063	
W9F0203-02	90064	
W9F0203-03	90065	

Were ICP interelement corrections applied? Yes/No Yes _____

Were ICP background corrections applied? Yes/No Yes _____

 If yes - were raw data generated before Yes/No No _____

 applications of background corrections?

Comments: MONSANTO

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 

Name: KIRBY L. GRAY

Date: 06/15/2009

Title: TECHNICAL DIRECTOR

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CHAIN OF CUSTODY RECORD

SVL Analytical, Inc. • One Government Gulch • Kellogg, ID 83837 • (208) 784-1258 • FAX: (208) 783-0891

Page 1 of 1

WYFU203
~~WYFA140~~ OF 6/4/09
FOR SVL USE ONLY
SVL JOB #

TEMP on Receipt: 8.1°C

Table I. - Matrix Type
1 = Surface Water, 2 = Ground Water
3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
6 = Waste, 7 = Other

Report to Company: <u>Goide Assoc.</u>	Invoice Sent To: <u>Same</u>
Contact: <u>Michael Kirsch</u>	Contact: _____
Address: <u>18300 NE Union Hill Rd</u>	Address: _____
<u>Ste 200 Redmond WA 98052</u>	Address: _____
Phone Number: <u>425/883 0777</u>	Phone Number: _____
FAX Number: <u>425/882 5438</u>	FAX Number: _____
E-mail: <u>m.kirche@goide.com</u>	PO#: _____

Project Name: Mysanto
Sampler's Signature: [Signature]

Indicate State of sample origination: FD USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)							Rush Instructions (Days)	Comments			
	Date	Time		Collected by: (Init.)	Matrix Type (From Table I)	No. of Containers	Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl			H ₂ SO ₄	NaOH	Other (Specify)
90054	6/1/09	1450	MC 2 3												
90055		1455													
90057		1600													
90058		1655													
90059		1705													
90060		1830													
90061		1845													
90062	6/2	1125													
90063		1520													
90064		1630													

Relinquished by: [Signature] Date: 6/3/09 Time: 10:00 Received by: [Signature] Date: 6/4/09 Time: 14:00

* Sample Reject: Return Dispose Store (30 Days) White: LAB COPY Yellow: CUSTOMER COPY SVL-COC 9/05

11 90065 6/2/09 1640

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CHAIN OF CUSTODY RECORD

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Page 1 of 1

W4F0203
W4F0142 04/01/09

FOR SVL USE ONLY
SVL JOB #

Report to Company: <u>Golden Assoc.</u>	Invoice Sent To: <u>Same</u>
Contact: <u>Michael Kirsch</u>	Contact: _____
Address: <u>18300 DE Union Hill Rd</u>	Address: _____
<u>St 201 Nadenand WA 98052</u>	Address: _____
Phone Number: <u>425/883 0777</u>	Phone Number: _____
FAX Number: <u>425/882 5495</u>	FAX Number: _____
E-mail: <u>m.kirsch@golden.com</u>	PO#: _____

TEMP on Receipt 8.1°

Table I. - Matrix Type
 1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Rinse, 5 = Oil
 6 = Waste, 7 = Other _____

Project Name: Myers
 Sampler's Signature: [Signature]

Indicate State of sample origination: IO USACE? Yes No

Sample ID	Collection		Misc.	Preservative(s)						Rush Instructions (Days)	Comments		
	Date	Time		Unpreserved	HNO ₃ Filtered	HNO ₃ Unfiltered	HCl	H ₂ SO ₄	NaOH			Other (Specify)	
1 90054	6/1/09	1450	M2	✓	✓								
2 90055		1455											
3 90057		1600											
4 90058		1650											
5 90059		1705											
6 90060		1830											
7 90061		1845											
8 90062	6/2	1125											
9 90063		1520											
10 90064		1600											

Relinquished by: [Signature] Date: 6/2/09 Time: 10:00
 Received by: [Signature] Date: 6/4/09 Time: 14:00

* Sample Reject: Return Dispose Store (30 Days)

White: LAB COPY Yellow: CUSTOMER COPY

SVL-COC 9/05

11 90065 6/2/09 1640

COPY

ATTACHMENT 5
SUPPORTING DOCUMENTATION

TABLE A-5.0
Sample Collection Summary
June 2009

Location	Sample ID	Formation Monitored	Sample Date	Sample Time	Method	Purge Water Disposal Method	Filter/ Unfilter	Filter Size	Notes
Surface Water/Effluent									
Effluent 1	90037	NA	5/31/2009	10:00	Grab	NA	U		
Effluent 2	90038	NA	5/31/2009	10:00	Grab	NA	U		
Effluent 3	90039	NA	5/31/2009	10:00	Grab	NA	U		
Soda Down	90047	NA	5/31/2009	14:35	Grab	NA	U		
Soda Down Weir	90040	NA	5/31/2009	10:15	Grab	NA	U		
Soda Mid	90045	NA	5/31/2009	13:15	Grab	NA	U		
Soda Up	90036	NA	5/31/2009	9:45	Grab	NA	U		
Pond Inlet	90073	NA	6/3/2009	7:15	Grab	NA	U		
Groundwater									
Big Spring	90076	NA	6/3/2009	8:25	Grab	NA	U		
Calf Spring	90042	NA	5/31/2009	11:30	Grab	NA	U		
City Park Spring	90046	NA	5/31/2009	14:00	Grab	NA	U		
Harris Well	90066	UBZ	6/2/2009	17:30	Non-Dedicated Pump	GROUND	U		
Homestead Spring	90048	NA	5/31/2009	14:50	Grab	NA	U		
Lewis Well	90077	NA	6/3/2009	8:50	Operating Well	GROUND	U		
Mormon A Spring	90043	NA	5/31/2009	11:50	Grab	NA	U		
Mormon B Spring	90074	NA	6/3/2009	7:45	Grab	NA	U		
Mormon C Spring	90075	NA	6/3/2009	8:00	Grab	NA	U		
Mormon Creek	90044	NA	5/31/2009	13:10	Grab	NA	U		
PW-01	90060	UBZ, LBZ	6/1/2009	18:30	Operating Well	GROUND	U		
PW-02	90061	UBZ, LBZ	6/1/2009	18:45	Operating Well	GROUND	U		
PW-03	90028	UBZ, LBZ	5/30/2009	12:45	Operating Well	GROUND	U		
PW-04	90027	UBZ, LBZ	5/30/2009	12:15	Operating Well	GROUND	U		
SO2 Landfill North	90017	UBZ	5/29/2009	13:00	Dedicated Pump	GROUND	F		
SO2 Landfill South	90018	UBZ	5/29/2009	14:05	Dedicated Pump	GROUND	U		
SW Spring	90041	NA	5/31/2009	11:05	Grab	NA	U		
TW-08	90052	UBZ	6/1/2009	11:25	Non-Dedicated Pump	TANK	U		
TW-10	90007	UBZ	5/28/2009	19:20	Dedicated Pump	TANK	U		
TW-15	90019	UBZ	5/29/2009	14:25	Dedicated Pump	GROUND	U		
TW-16	90021	UBZ	5/29/2009	14:45	Dedicated Pump	TANK	U		
TW-17	90022	UBZ	5/29/2009	15:15	Dedicated Pump	TANK	U		
TW-18	90023	LBZ	5/29/2009	16:00	Dedicated Pump	GROUND	U		
TW-22	90008	UBZ	5/28/2009	20:10	Dedicated Pump	TANK	U		
TW-24	90053	UBZ	6/1/2009	13:00	Non-Dedicated Pump	GROUND	U		
TW-26	90024	UBZ	5/29/2009	17:30	Dedicated Pump	TANK	U		
TW-29	90015	UBZ	5/29/2009	11:40	Dedicated Pump	GROUND	U		
TW-30	90058	UBZ	6/1/2009	16:55	Dedicated Pump	TANK	U		
TW-34	90001	UBZ	5/28/2009	18:00	Dedicated Pump	GROUND	U		
TW-35	90004	UBZ	5/28/2009	18:45	Dedicated Pump	GROUND	U		
TW-37	90034	UBZ	5/30/2009	16:45	Dedicated Pump	TANK	U		
TW-38	90051	UBZ	6/1/2009	9:30	Non-Dedicated Pump	TANK	U		

TABLE A-5.0
Sample Collection Summary
June 2009

Location	Sample ID	Formation Monitored	Sample Date	Sample Time	Method	Purge Water Disposal Method	Filter/ Unfilter	Filter Size	Notes
TW-40	90025	UBZ	5/30/2009	9:45	Hand Bailed	TANK	F	0.45 µm	Elevated Turbidity
TW-41	90059	UBZ	6/1/2009	17:25	Dedicated Pump	TANK	U		
TW-43	90026	UBZ	5/30/2009	11:00	Hand Bailed	TANK	F	0.45 µm	Elevated Turbidity
TW-44	90050	LBZ	5/31/2009	17:15	Dedicated Pump	TANK	U		
TW-45	90035	LBZ	5/30/2009	17:30	Dedicated Pump	TANK	U		
TW-48	90016	UBZ	5/29/2009	12:45	Dedicated Pump	GROUND	U		
TW-49	90020	UBZ	5/29/2009	14:45	Dedicated Pump	GROUND	U		
TW-50	90057	UBZ	6/1/2009	16:00	Dedicated Pump	TANK	U		
TW-53	90068	UBZ	6/2/2009	19:10	Dedicated Pump	TANK	U		
TW-56	90062	UBZ	6/2/2009	11:25	Dedicated Pump	TANK	U		
TW-57	90033	UBZ	5/30/2009	16:15	Dedicated Pump	GROUND	U		
TW-60	90010	UBZ	5/29/2009	9:20	Dedicated Pump	GROUND	U		
TW-61	90009	UBZ	5/29/2009	8:30	Dedicated Pump	GROUND	U		
Fox Hills Ranch	90063	Unknown	6/2/2009	15:20	Dedicated Pump	GROUND	U		
Quarry Well-4"	90064	Unknown	6/2/2009	16:30	Dedicated Pump	GROUND	U		
Quarry Well-6"	90065	Unknown	6/2/2009	16:40	Dedicated Pump	GROUND	U		
QA/QC									
DI Blank	90049	NA	5/31/2009	16:30	Grab	NA	U		Blank
Grundfos Blank	90067	NA	6/2/09	18:30	Grab	NA	U		Equip. Blank
TW-11	90029	LBZ	5/30/2009	14:30	Dedicated Pump	TANK	U		
TW-11	90030	LBZ	5/30/2009	14:30	Dedicated Pump	TANK	U		Field Duplicate
TW-12	90031	UBZ	5/30/2009	14:55	Dedicated Pump	TANK	U		
TW-12	90032	UBZ	5/30/2009	14:55	Dedicated Pump	TANK	U		Field Split Sample
TW-20	90002	UBZ	5/28/2009	18:15	Dedicated Pump	TANK	U		
TW-20	90003	UBZ	5/28/2009	18:15	Dedicated Pump	TANK	U		Field Split Sample
TW-33	90054	UBZ	6/1/2009	14:50	Dedicated Pump	TANK	U		
TW-33	90055	UBZ	6/1/2009	14:55	Dedicated Pump	TANK	U		Field Duplicate
TW-33	90056	UBZ	6/1/2009	14:50	Dedicated Pump	TANK	U		Field Split Sample
TW-39	90005	UBZ	5/28/2009	19:05	Dedicated Pump	TANK	U		
TW-39	90006	UBZ	5/28/2009	19:10	Dedicated Pump	TANK	U		Field Duplicate
TW-54	90069	UBZ	6/2/2009	19:40	Dedicated Pump	TANK	U		
TW-54	90070	UBZ	6/2/2009	19:40	Dedicated Pump	TANK	U		Field Split Sample
TW-55	90071	UBZ	6/2/2009	20:10	Dedicated Pump	TANK	U		
TW-55	90072	UBZ	6/2/2009	20:10	Dedicated Pump	TANK	U		Field Duplicate
TW-59	90011	UBZ	5/29/2009	10:20	Dedicated Pump	GROUND	U		
TW-59	90012	UBZ	5/29/2009	10:20	Dedicated Pump	GROUND	U		Field Split Sample - submitted to lab as 90011
TW-62	90013	UBZ	5/29/2009	10:50	Dedicated Pump	GROUND	U		
TW-62	90014	UBZ	5/29/2009	10:50	Dedicated Pump	GROUND	U		Field Duplicate
NOTES:									
	UBZ	Upper Basalt Zone							
	LBZ	Lower Basalt Zone							
	U	Unfiltered							
	F	Filtered							
	NA	Not applicable							

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 2540 C / Total Diss. Solids									
W9F0136-01	90001	Water	5/28/2009	6/5/2009	6/5/2009	8	8	7	Qual. J
W9F0136-02	90002	Water	5/28/2009	6/5/2009	6/5/2009	8	8	7	Qual. J
W9F0136-03	90004	Water	5/28/2009	6/5/2009	6/5/2009	8	8	7	Qual. J
W9F0136-04	90005	Water	5/28/2009	6/5/2009	6/5/2009	8	8	7	Qual. J
W9F0136-05	90006	Water	5/28/2009	6/5/2009	6/5/2009	8	8	7	Qual. J
W9F0136-06	90007	Water	5/28/2009	6/5/2009	6/5/2009	8	8	7	Qual. J
W9F0136-07	90008	Water	5/28/2009	6/5/2009	6/5/2009	8	8	7	Qual. J
W9F0136-08	90009	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-09	90010	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-10	90011	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-11	90013	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-12	90014	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-13	90015	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-14	90016	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-15	90017	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-16	90018	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-17	90019	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-18	90020	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-19	90021	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0136-20	90022	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0137-01	90023	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0137-02	90024	Water	5/29/2009	6/5/2009	6/5/2009	7	7	7	Accept
W9F0137-03	90025	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-04	90026	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-05	90027	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-06	90028	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-07	90029	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-08	90030	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-09	90031	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-10	90033	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-11	90034	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-12	90035	Water	5/30/2009	6/5/2009	6/5/2009	6	6	7	Accept
W9F0137-13	90036	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0137-14	90037	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0137-15	90038	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0137-16	90039	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0137-17	90040	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0137-18	90041	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0137-19	90042	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 2540 C / Total Diss. Solids									
W9F0137-20	90043	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0140-01	90044	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0140-02	90045	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0140-03	90046	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0140-04	90047	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-05	90048	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0140-06	90049	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0140-07	90050	Water	5/31/2009	6/5/2009	6/5/2009	5	5	7	Accept
W9F0140-08	90051	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-09	90052	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-10	90053	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-11	90054	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-12	90055	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-13	90057	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-14	90058	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-15	90059	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-16	90060	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-17	90061	Water	6/1/2009	6/5/2009	6/5/2009	4	4	7	Accept
W9F0140-18	90062	Water	6/2/2009	6/5/2009	6/5/2009	3	3	7	Accept
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0142-02	90066	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0142-03	90067	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0142-04	90068	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0142-05	90069	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0142-06	90071	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0142-07	90072	Water	6/2/2009	6/9/2009	6/9/2009	7	7	7	Accept
W9F0142-08	90073	Water	6/3/2009	6/9/2009	6/9/2009	6	6	7	Accept
W9F0142-09	90074	Water	6/3/2009	6/9/2009	6/9/2009	6	6	7	Accept
W9F0142-10	90075	Water	6/3/2009	6/9/2009	6/9/2009	6	6	7	Accept
W9F0142-11	90076	Water	6/3/2009	6/9/2009	6/9/2009	6	6	7	Accept
W9F0142-12	90077	Water	6/3/2009	6/9/2009	6/9/2009	6	6	7	Accept
PB30A	90003	Water	5/28/2009	6/4/2009	6/4/2009	7	7	7	Accept
PB30B	90011	Water	5/29/2009	6/4/2009	6/4/2009	6	6	7	Accept
PB30C	90032	Water	5/30/2009	6/4/2009	6/4/2009	5	5	7	Accept
PB30D	90056	Water	6/1/2009	6/4/2009	6/4/2009	3	3	7	Accept
PB30E	90070	Water	6/2/2009	6/4/2009	6/4/2009	2	2	7	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 4500 P / Total Phosphorus									
W9F0136-01	90001	Water	5/28/2009	6/18/2009	6/18/2009	21	21	28	Accept
W9F0136-02	90002	Water	5/28/2009	6/18/2009	6/18/2009	21	21	28	Accept
W9F0136-03	90004	Water	5/28/2009	6/18/2009	6/18/2009	21	21	28	Accept
W9F0136-04	90005	Water	5/28/2009	6/18/2009	6/18/2009	21	21	28	Accept
W9F0136-05	90006	Water	5/28/2009	6/18/2009	6/18/2009	21	21	28	Accept
W9F0136-06	90007	Water	5/28/2009	6/18/2009	6/18/2009	21	21	28	Accept
W9F0136-07	90008	Water	5/28/2009	6/18/2009	6/18/2009	21	21	28	Accept
W9F0136-08	90009	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-09	90010	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-10	90011	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-11	90013	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-12	90014	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-13	90015	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-14	90016	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-15	90017	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-16	90018	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-17	90019	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-18	90020	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-19	90021	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0136-20	90022	Water	5/29/2009	6/18/2009	6/18/2009	20	20	28	Accept
W9F0137-01	90023	Water	5/29/2009	6/19/2009	6/19/2009	21	21	28	Accept
W9F0137-02	90024	Water	5/29/2009	6/19/2009	6/19/2009	21	21	28	Accept
W9F0137-03	90025	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-04	90026	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-05	90027	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-06	90028	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-07	90029	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-08	90030	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-09	90031	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-10	90033	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-11	90034	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-12	90035	Water	5/30/2009	6/19/2009	6/19/2009	20	20	28	Accept
W9F0137-13	90036	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept
W9F0137-14	90037	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept
W9F0137-15	90038	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept
W9F0137-16	90039	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept
W9F0137-17	90040	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept
W9F0137-18	90041	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept
W9F0137-19	90042	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 4500 P / Total Phosphorus									
W9F0137-20	90043	Water	5/31/2009	6/19/2009	6/19/2009	19	19	28	Accept
W9F0140-01	90044	Water	5/31/2009	6/17/2009	6/17/2009	17	17	28	Accept
W9F0140-02	90045	Water	5/31/2009	6/17/2009	6/17/2009	17	17	28	Accept
W9F0140-03	90046	Water	5/31/2009	6/17/2009	6/17/2009	17	17	28	Accept
W9F0140-04	90047	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-05	90048	Water	5/31/2009	6/17/2009	6/17/2009	17	17	28	Accept
W9F0140-06	90049	Water	5/31/2009	6/17/2009	6/17/2009	17	17	28	Accept
W9F0140-07	90050	Water	5/31/2009	6/17/2009	6/17/2009	17	17	28	Accept
W9F0140-08	90051	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-09	90052	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-10	90053	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-11	90054	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-12	90055	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-13	90057	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-14	90058	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-15	90059	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-16	90060	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-17	90061	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
W9F0140-18	90062	Water	6/2/2009	6/17/2009	6/17/2009	15	15	28	Accept
W9F0203-01	90063	Water	6/2/2009	6/10/2009	6/15/2009	8	13	28	Accept
W9F0203-02	90064	Water	6/2/2009	6/10/2009	6/15/2009	8	13	28	Accept
W9F0203-03	90065	Water	6/2/2009	6/10/2009	6/15/2009	8	13	28	Accept
W9F0142-02	90066	Water	6/2/2009	6/18/2009	6/18/2009	16	16	28	Accept
W9F0142-03	90067	Water	6/2/2009	6/18/2009	6/18/2009	16	16	28	Accept
W9F0142-04	90068	Water	6/2/2009	6/18/2009	6/18/2009	16	16	28	Accept
W9F0142-05	90069	Water	6/2/2009	6/18/2009	6/18/2009	16	16	28	Accept
W9F0142-06	90071	Water	6/2/2009	6/18/2009	6/18/2009	16	16	28	Accept
W9F0142-07	90072	Water	6/2/2009	6/18/2009	6/18/2009	16	16	28	Accept
W9F0142-08	90073	Water	6/3/2009	6/18/2009	6/18/2009	15	15	28	Accept
W9F0142-09	90074	Water	6/3/2009	6/18/2009	6/18/2009	15	15	28	Accept
W9F0142-10	90075	Water	6/3/2009	6/18/2009	6/18/2009	15	15	28	Accept
W9F0142-11	90076	Water	6/3/2009	6/18/2009	6/18/2009	15	15	28	Accept
W9F0142-12	90077	Water	6/3/2009	6/18/2009	6/18/2009	15	15	28	Accept
PB30A	90003	Water	5/28/2009	6/17/2009	6/17/2009	20	20	28	Accept
PB30B	90011	Water	5/29/2009	6/17/2009	6/17/2009	19	19	28	Accept
PB30C	90032	Water	5/30/2009	6/17/2009	6/17/2009	18	18	28	Accept
PB30D	90056	Water	6/1/2009	6/17/2009	6/17/2009	16	16	28	Accept
PB30E	90070	Water	6/2/2009	6/17/2009	6/17/2009	15	15	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 2320 B / Bicarbonate, Carbonate									
W9F0136-01	90001	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-02	90002	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-03	90004	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-04	90005	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-05	90006	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-06	90007	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-07	90008	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-08	90009	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-09	90010	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-10	90011	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-11	90013	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-12	90014	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-13	90015	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-14	90016	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-15	90017	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-16	90018	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-17	90019	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-18	90020	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-19	90021	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-20	90022	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0137-01	90023	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0137-02	90024	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0137-03	90025	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-04	90026	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-05	90027	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-06	90028	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-07	90029	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-08	90030	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-09	90031	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-10	90033	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-11	90034	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-12	90035	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-13	90036	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-14	90037	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-15	90038	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-16	90039	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-17	90040	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-18	90041	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-19	90042	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 2320 B / Bicarbonate, Carbonate									
W9F0137-20	90043	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0140-01	90044	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-02	90045	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-03	90046	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-04	90047	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-05	90048	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-06	90049	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-07	90050	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-08	90051	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-09	90052	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-10	90053	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-11	90054	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-12	90055	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-13	90057	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-14	90058	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-15	90059	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-16	90060	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-17	90061	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-18	90062	Water	6/2/2009	6/25/2009	6/25/2009	23	23	14	Qual. J
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/9/2009	7	7	14	Accept
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/9/2009	7	7	14	Accept
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/9/2009	7	7	14	Accept
W9F0142-02	90066	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-03	90067	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-04	90068	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-05	90069	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-06	90071	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-07	90072	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-08	90073	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-09	90074	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-10	90075	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-11	90076	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-12	90077	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 2320 B / Total Alkalinity									
W9F0136-01	90001	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-02	90002	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-03	90004	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-04	90005	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-05	90006	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-06	90007	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-07	90008	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0136-08	90009	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-09	90010	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-10	90011	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-11	90013	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
W9F0136-12	90014	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-13	90015	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-14	90016	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-15	90017	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-16	90018	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-17	90019	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-18	90020	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-19	90021	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0136-20	90022	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0137-01	90023	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0137-02	90024	Water	5/29/2009	6/5/2009	6/8/2009	7	10	14	Accept
W9F0137-03	90025	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-04	90026	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-05	90027	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-06	90028	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-07	90029	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-08	90030	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-09	90031	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-10	90033	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-11	90034	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-12	90035	Water	5/30/2009	6/5/2009	6/8/2009	6	9	14	Accept
W9F0137-13	90036	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-14	90037	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-15	90038	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-16	90039	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-17	90040	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-18	90041	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0137-19	90042	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 2320 B / Total Alkalinity									
W9F0137-20	90043	Water	5/31/2009	6/5/2009	6/8/2009	5	8	14	Accept
W9F0140-01	90044	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-02	90045	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-03	90046	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-04	90047	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-05	90048	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-06	90049	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-07	90050	Water	5/31/2009	6/5/2009	6/9/2009	5	9	14	Accept
W9F0140-08	90051	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-09	90052	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-10	90053	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-11	90054	Water	6/1/2009	6/5/2009	6/9/2009	4	8	14	Accept
W9F0140-12	90055	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-13	90057	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-14	90058	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-15	90059	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-16	90060	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-17	90061	Water	6/1/2009	6/25/2009	6/25/2009	24	24	14	Qual. J
W9F0140-18	90062	Water	6/2/2009	6/25/2009	6/25/2009	23	23	14	Qual. J
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/9/2009	7	7	14	Accept
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/9/2009	7	7	14	Accept
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/9/2009	7	7	14	Accept
W9F0142-02	90066	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-03	90067	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-04	90068	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-05	90069	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-06	90071	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-07	90072	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
W9F0142-08	90073	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-09	90074	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-10	90075	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-11	90076	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
W9F0142-12	90077	Water	6/3/2009	6/5/2009	6/10/2009	2	7	14	Accept
PB30A	90003	Water	5/28/2009	6/5/2009	6/5/2009	8	8	1	Qual. J
PB30B	90011	Water	5/29/2009	6/5/2009	6/5/2009	7	7	14	Accept
PB30C	90032	Water	5/30/2009	6/5/2009	6/5/2009	6	6	14	Accept
PB30D	90056	Water	6/1/2009	6/5/2009	6/5/2009	4	4	14	Accept
PB30E	90070	Water	6/2/2009	6/5/2009	6/5/2009	3	3	14	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 353.2 / Nitrate/Nitrite as N									
W9F0136-01	90001	Water	5/28/2009	6/16/2009	6/17/2009	19	20	28	Accept
W9F0136-02	90002	Water	5/28/2009	6/16/2009	6/17/2009	19	20	28	Accept
W9F0136-03	90004	Water	5/28/2009	6/16/2009	6/17/2009	19	20	28	Accept
W9F0136-04	90005	Water	5/28/2009	6/16/2009	6/17/2009	19	20	28	Accept
W9F0136-05	90006	Water	5/28/2009	6/16/2009	6/17/2009	19	20	28	Accept
W9F0136-06	90007	Water	5/28/2009	6/16/2009	6/17/2009	19	20	28	Accept
W9F0136-07	90008	Water	5/28/2009	6/16/2009	6/17/2009	19	20	28	Accept
W9F0136-08	90009	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-09	90010	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-10	90011	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-11	90013	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-12	90014	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-13	90015	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-14	90016	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-15	90017	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-16	90018	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-17	90019	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-18	90020	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-19	90021	Water	5/29/2009	6/16/2009	6/17/2009	18	19	28	Accept
W9F0136-20	90022	Water	5/29/2009	6/16/2009	6/18/2009	18	20	28	Accept
W9F0137-01	90023	Water	5/29/2009	6/16/2009	6/18/2009	18	20	28	Accept
W9F0137-02	90024	Water	5/29/2009	6/16/2009	6/18/2009	18	20	28	Accept
W9F0137-03	90025	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-04	90026	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-05	90027	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-06	90028	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-07	90029	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-08	90030	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-09	90031	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-10	90033	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-11	90034	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-12	90035	Water	5/30/2009	6/16/2009	6/18/2009	17	19	28	Accept
W9F0137-13	90036	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0137-14	90037	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0137-15	90038	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0137-16	90039	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0137-17	90040	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0137-18	90041	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0137-19	90042	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 353.2 / Nitrate/Nitrite as N									
W9F0137-20	90043	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0140-02	90045	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0140-03	90046	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0140-04	90047	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-05	90048	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0140-06	90049	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0140-07	90050	Water	5/31/2009	6/16/2009	6/18/2009	16	18	28	Accept
W9F0140-08	90051	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-09	90052	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-10	90053	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-11	90054	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-12	90055	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-13	90057	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-14	90058	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-15	90059	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-16	90060	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-17	90061	Water	6/1/2009	6/16/2009	6/18/2009	15	17	28	Accept
W9F0140-18	90062	Water	6/2/2009	6/16/2009	6/18/2009	14	16	28	Accept
W9F0203-01	90063	Water	6/2/2009	6/12/2009	6/15/2009	10	13	28	Accept
W9F0203-02	90064	Water	6/2/2009	6/22/2009	6/22/2009	20	20	28	Accept
W9F0203-03	90065	Water	6/2/2009	6/22/2009	6/22/2009	20	20	28	Accept
W9F0142-02	90066	Water	6/2/2009	6/16/2009	6/18/2009	14	16	28	Accept
W9F0142-03	90067	Water	6/2/2009	6/16/2009	6/18/2009	14	16	28	Accept
W9F0142-04	90068	Water	6/2/2009	6/16/2009	6/18/2009	14	16	28	Accept
W9F0142-05	90069	Water	6/2/2009	6/16/2009	6/18/2009	14	16	28	Accept
W9F0142-06	90071	Water	6/2/2009	6/16/2009	6/18/2009	14	16	28	Accept
W9F0142-07	90072	Water	6/2/2009	6/16/2009	6/18/2009	14	16	28	Accept
W9F0142-08	90073	Water	6/3/2009	6/16/2009	6/18/2009	13	15	28	Accept
W9F0142-09	90074	Water	6/3/2009	6/16/2009	6/18/2009	13	15	28	Accept
W9F0142-10	90075	Water	6/3/2009	6/16/2009	6/18/2009	13	15	28	Accept
W9F0142-11	90076	Water	6/3/2009	6/16/2009	6/18/2009	13	15	28	Accept
W9F0142-12	90077	Water	6/3/2009	6/16/2009	6/18/2009	13	15	28	Accept
PB30A	90003	Water	5/28/2009	6/10/2009	6/10/2009	13	13	28	Accept
PB30B	90011	Water	5/29/2009	6/10/2009	6/10/2009	12	12	28	Accept
PB30C	90032	Water	5/30/2009	6/10/2009	6/10/2009	11	11	28	Accept
PB30D	90056	Water	6/1/2009	6/10/2009	6/10/2009	9	9	28	Accept
PB30E	90070	Water	6/2/2009	6/10/2009	6/10/2009	8	8	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 350.1 / Ammonia as N									
W9F0136-01	90001	Water	5/28/2009	6/16/2009	6/19/2009	19	22	28	Accept
W9F0136-02	90002	Water	5/28/2009	6/16/2009	6/19/2009	19	22	28	Accept
W9F0136-03	90004	Water	5/28/2009	6/16/2009	6/19/2009	19	22	28	Accept
W9F0136-04	90005	Water	5/28/2009	6/16/2009	6/19/2009	19	22	28	Accept
W9F0136-05	90006	Water	5/28/2009	6/16/2009	6/19/2009	19	22	28	Accept
W9F0136-06	90007	Water	5/28/2009	6/16/2009	6/19/2009	19	22	28	Accept
W9F0136-07	90008	Water	5/28/2009	6/16/2009	6/19/2009	19	22	28	Accept
W9F0136-08	90009	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-09	90010	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-10	90011	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-11	90013	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-12	90014	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-13	90015	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-14	90016	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-15	90017	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-16	90018	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-17	90019	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-18	90020	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-19	90021	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0136-20	90022	Water	5/29/2009	6/16/2009	6/19/2009	18	21	28	Accept
W9F0137-01	90023	Water	5/29/2009	6/16/2009	6/23/2009	18	25	28	Accept
W9F0137-02	90024	Water	5/29/2009	6/16/2009	6/23/2009	18	25	28	Accept
W9F0137-03	90025	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-04	90026	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-05	90027	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-06	90028	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-07	90029	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-08	90030	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-09	90031	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-10	90033	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-11	90034	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-12	90035	Water	5/30/2009	6/16/2009	6/23/2009	17	24	28	Accept
W9F0137-13	90036	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0137-14	90037	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0137-15	90038	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0137-16	90039	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0137-17	90040	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0137-18	90041	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0137-19	90042	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 350.1 / Ammonia as N									
W9F0137-20	90043	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0140-01	90044	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0140-02	90045	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0140-03	90046	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0140-04	90047	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-05	90048	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0140-06	90049	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0140-07	90050	Water	5/31/2009	6/16/2009	6/23/2009	16	23	28	Accept
W9F0140-08	90051	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-09	90052	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-10	90053	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-11	90054	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-12	90055	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-13	90057	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-14	90058	Water	6/1/2009	6/16/2009	6/23/2009	15	22	28	Accept
W9F0140-15	90059	Water	6/1/2009	6/16/2009	6/19/2009	15	18	28	Accept
W9F0140-16	90060	Water	6/1/2009	6/16/2009	6/19/2009	15	18	28	Accept
W9F0140-17	90061	Water	6/1/2009	6/16/2009	6/19/2009	15	18	28	Accept
W9F0140-18	90062	Water	6/2/2009	6/16/2009	6/19/2009	14	17	28	Accept
W9F0203-01	90063	Water	6/2/2009	6/12/2009	6/16/2009	10	14	28	Accept
W9F0203-02	90064	Water	6/2/2009	6/12/2009	6/16/2009	10	14	28	Accept
W9F0203-03	90065	Water	6/2/2009	6/12/2009	6/16/2009	10	14	28	Accept
W9F0142-02	90066	Water	6/2/2009	6/16/2009	6/19/2009	14	17	28	Accept
W9F0142-03	90067	Water	6/2/2009	6/16/2009	6/19/2009	14	17	28	Accept
W9F0142-04	90068	Water	6/2/2009	6/16/2009	6/19/2009	14	17	28	Accept
W9F0142-05	90069	Water	6/2/2009	6/16/2009	6/19/2009	14	17	28	Accept
W9F0142-06	90071	Water	6/2/2009	6/16/2009	6/19/2009	14	17	28	Accept
W9F0142-07	90072	Water	6/2/2009	6/16/2009	6/19/2009	14	17	28	Accept
W9F0142-08	90073	Water	6/3/2009	6/16/2009	6/19/2009	13	16	28	Accept
W9F0142-09	90074	Water	6/3/2009	6/16/2009	6/19/2009	13	16	28	Accept
W9F0142-10	90075	Water	6/3/2009	6/16/2009	6/19/2009	13	16	28	Accept
W9F0142-11	90076	Water	6/3/2009	6/16/2009	6/19/2009	13	16	28	Accept
W9F0142-12	90077	Water	6/3/2009	6/16/2009	6/19/2009	13	16	28	Accept
PB30A	90003	Water	5/28/2009	6/10/2009	6/10/2009	13	13	28	Accept
PB30B	90011	Water	5/29/2009	6/10/2009	6/10/2009	12	12	28	Accept
PB30C	90032	Water	5/30/2009	6/10/2009	6/10/2009	11	11	28	Accept
PB30D	90056	Water	6/1/2009	6/10/2009	6/10/2009	9	9	28	Accept
PB30E	90070	Water	6/2/2009	6/10/2009	6/10/2009	8	8	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 300.0 / Chloride, Fluoride, Sulfate as SO₄									
W9F0136-01	90001	Water	5/28/2009	6/15/2009	6/18/2009	18	21	28	Accept
W9F0136-02	90002	Water	5/28/2009	6/15/2009	6/18/2009	18	21	28	Accept
W9F0136-03	90004	Water	5/28/2009	6/15/2009	6/18/2009	18	21	28	Accept
W9F0136-04	90005	Water	5/28/2009	6/15/2009	6/18/2009	18	21	28	Accept
W9F0136-05	90006	Water	5/28/2009	6/15/2009	6/18/2009	18	21	28	Accept
W9F0136-06	90007	Water	5/28/2009	6/15/2009	6/18/2009	18	21	28	Accept
W9F0136-07	90008	Water	5/28/2009	6/15/2009	6/18/2009	18	21	28	Accept
W9F0136-08	90009	Water	5/29/2009	6/15/2009	6/18/2009	17	20	28	Accept
W9F0136-09	90010	Water	5/29/2009	6/15/2009	6/18/2009	17	20	28	Accept
W9F0136-10	90011	Water	5/29/2009	6/15/2009	6/18/2009	17	20	28	Accept
W9F0136-11	90013	Water	5/29/2009	6/15/2009	6/18/2009	17	20	28	Accept
W9F0136-12	90014	Water	5/29/2009	6/15/2009	6/18/2009	17	20	28	Accept
W9F0136-13	90015	Water	5/29/2009	6/15/2009	6/18/2009	17	20	28	Accept
W9F0136-14	90016	Water	5/29/2009	6/15/2009	6/18/2009	17	20	28	Accept
W9F0136-15	90017	Water	5/29/2009	6/15/2009	6/19/2009	17	21	28	Accept
W9F0136-16	90018	Water	5/29/2009	6/15/2009	6/19/2009	17	21	28	Accept
W9F0136-17	90019	Water	5/29/2009	6/15/2009	6/19/2009	17	21	28	Accept
W9F0136-18	90020	Water	5/29/2009	6/15/2009	6/19/2009	17	21	28	Accept
W9F0136-19	90021	Water	5/29/2009	6/15/2009	6/19/2009	17	21	28	Accept
W9F0136-20	90022	Water	5/29/2009	6/15/2009	6/19/2009	17	21	28	Accept
W9F0137-01	90023	Water	5/29/2009	6/15/2009	6/17/2009	17	19	28	Accept
W9F0137-02	90024	Water	5/29/2009	6/15/2009	6/17/2009	17	19	28	Accept
W9F0137-03	90025	Water	5/30/2009	6/15/2009	6/17/2009	16	18	28	Accept
W9F0137-04	90026	Water	5/30/2009	6/15/2009	6/17/2009	16	18	28	Accept
W9F0137-05	90027	Water	5/30/2009	6/15/2009	6/17/2009	16	18	28	Accept
W9F0137-06	90028	Water	5/30/2009	6/15/2009	6/17/2009	16	18	28	Accept
W9F0137-07	90029	Water	5/30/2009	6/15/2009	6/17/2009	16	18	28	Accept
W9F0137-08	90030	Water	5/30/2009	6/15/2009	6/18/2009	16	19	28	Accept
W9F0137-09	90031	Water	5/30/2009	6/15/2009	6/18/2009	16	19	28	Accept
W9F0137-10	90033	Water	5/30/2009	6/15/2009	6/18/2009	16	19	28	Accept
W9F0137-11	90034	Water	5/30/2009	6/15/2009	6/18/2009	16	19	28	Accept
W9F0137-12	90035	Water	5/30/2009	6/15/2009	6/18/2009	16	19	28	Accept
W9F0137-13	90036	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept
W9F0137-14	90037	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept
W9F0137-15	90038	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept
W9F0137-16	90039	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept
W9F0137-17	90040	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept
W9F0137-18	90041	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept
W9F0137-19	90042	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 300.0 / Chloride, Fluoride, Sulfate as SO₄									
W9F0137-20	90043	Water	5/31/2009	6/15/2009	6/18/2009	15	18	28	Accept
W9F0140-01	90044	Water	5/31/2009	6/15/2009	6/17/2009	15	17	28	Accept
W9F0140-02	90045	Water	5/31/2009	6/15/2009	6/17/2009	15	17	28	Accept
W9F0140-03	90046	Water	5/31/2009	6/15/2009	6/17/2009	15	17	28	Accept
W9F0140-04	90047	Water	6/1/2009	6/15/2009	6/17/2009	14	16	28	Accept
W9F0140-05	90048	Water	5/31/2009	6/15/2009	6/17/2009	15	17	28	Accept
W9F0140-06	90049	Water	5/31/2009	6/15/2009	6/17/2009	15	17	28	Accept
W9F0140-07	90050	Water	5/31/2009	6/15/2009	6/17/2009	15	17	28	Accept
W9F0140-08	90051	Water	6/1/2009	6/15/2009	6/17/2009	14	16	28	Accept
W9F0140-09	90052	Water	6/1/2009	6/15/2009	6/17/2009	14	16	28	Accept
W9F0140-10	90053	Water	6/1/2009	6/15/2009	6/17/2009	14	16	28	Accept
W9F0140-11	90054	Water	6/1/2009	6/15/2009	6/17/2009	14	16	28	Accept
W9F0140-12	90055	Water	6/1/2009	6/15/2009	6/17/2009	14	16	28	Accept
W9F0140-13	90057	Water	6/1/2009	6/15/2009	6/18/2009	14	17	28	Accept
W9F0140-14	90058	Water	6/1/2009	6/15/2009	6/18/2009	14	17	28	Accept
W9F0140-15	90059	Water	6/1/2009	6/15/2009	6/18/2009	14	17	28	Accept
W9F0140-16	90060	Water	6/1/2009	6/15/2009	6/18/2009	14	17	28	Accept
W9F0140-17	90061	Water	6/1/2009	6/15/2009	6/18/2009	14	17	28	Accept
W9F0140-18	90062	Water	6/2/2009	6/15/2009	6/18/2009	13	16	28	Accept
W9F0203-01	90063	Water	6/2/2009	6/14/2009	6/15/2009	12	13	28	Accept
W9F0203-02	90064	Water	6/2/2009	6/14/2009	6/15/2009	12	13	28	Accept
W9F0203-03	90065	Water	6/2/2009	6/14/2009	6/15/2009	12	13	28	Accept
W9F0142-02	90066	Water	6/2/2009	6/15/2009	6/17/2009	13	15	28	Accept
W9F0142-03	90067	Water	6/2/2009	6/15/2009	6/17/2009	13	15	28	Accept
W9F0142-04	90068	Water	6/2/2009	6/15/2009	6/17/2009	13	15	28	Accept
W9F0142-05	90069	Water	6/2/2009	6/15/2009	6/17/2009	13	15	28	Accept
W9F0142-06	90071	Water	6/2/2009	6/15/2009	6/17/2009	13	15	28	Accept
W9F0142-07	90072	Water	6/2/2009	6/15/2009	6/17/2009	13	15	28	Accept
W9F0142-08	90073	Water	6/3/2009	6/15/2009	6/17/2009	12	14	28	Accept
W9F0142-09	90074	Water	6/3/2009	6/15/2009	6/17/2009	12	14	28	Accept
W9F0142-10	90075	Water	6/3/2009	6/15/2009	6/17/2009	12	14	28	Accept
W9F0142-11	90076	Water	6/3/2009	6/15/2009	6/17/2009	12	14	28	Accept
W9F0142-12	90077	Water	6/3/2009	6/15/2009	6/17/2009	12	14	28	Accept
PB30A	90003	Water	5/28/2009	6/10/2009	6/10/2009	13	13	28	Accept
PB30B	90011	Water	5/29/2009	6/10/2009	6/10/2009	12	12	28	Accept
PB30C	90032	Water	5/30/2009	6/10/2009	6/10/2009	11	11	28	Accept
PB30D	90056	Water	6/1/2009	6/10/2009	6/10/2009	9	9	28	Accept
PB30E	90070	Water	6/2/2009	6/10/2009	6/10/2009	8	8	28	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 6010 B / Metals									
W9F0136-01	90001	Water	5/28/2009	6/10/2009	6/12/2009	13	15	180	Accept
W9F0136-02	90002	Water	5/28/2009	6/10/2009	6/12/2009	13	15	180	Accept
W9F0136-03	90004	Water	5/28/2009	6/10/2009	6/12/2009	13	15	180	Accept
W9F0136-04	90005	Water	5/28/2009	6/10/2009	6/12/2009	13	15	180	Accept
W9F0136-05	90006	Water	5/28/2009	6/10/2009	6/12/2009	13	15	180	Accept
W9F0136-06	90007	Water	5/28/2009	6/10/2009	6/12/2009	13	15	180	Accept
W9F0136-07	90008	Water	5/28/2009	6/10/2009	6/12/2009	13	15	180	Accept
W9F0136-08	90009	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-09	90010	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-10	90011	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-11	90013	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-12	90014	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-13	90015	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-14	90016	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-15	90017	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-16	90018	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-17	90019	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-18	90020	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-19	90021	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0136-20	90022	Water	5/29/2009	6/10/2009	6/12/2009	12	14	180	Accept
W9F0137-01	90023	Water	5/29/2009	6/12/2009	6/14/2009	14	16	180	Accept
W9F0137-02	90024	Water	5/29/2009	6/12/2009	6/14/2009	14	16	180	Accept
W9F0137-03	90025	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-04	90026	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-05	90027	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-06	90028	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-07	90029	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-08	90030	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-09	90031	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-10	90033	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-11	90034	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-12	90035	Water	5/30/2009	6/12/2009	6/14/2009	13	15	180	Accept
W9F0137-13	90036	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept
W9F0137-14	90037	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept
W9F0137-15	90038	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept
W9F0137-16	90039	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept
W9F0137-17	90040	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept
W9F0137-18	90041	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept
W9F0137-19	90042	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 6010 B / Metals									
W9F0137-20	90043	Water	5/31/2009	6/12/2009	6/14/2009	12	14	180	Accept
W9F0140-01	90044	Water	5/31/2009	6/12/2009	6/15/2009	12	15	180	Accept
W9F0140-02	90045	Water	5/31/2009	6/12/2009	6/15/2009	12	15	180	Accept
W9F0140-03	90046	Water	5/31/2009	6/12/2009	6/15/2009	12	15	180	Accept
W9F0140-04	90047	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-05	90048	Water	5/31/2009	6/12/2009	6/15/2009	12	15	180	Accept
W9F0140-06	90049	Water	5/31/2009	6/12/2009	6/15/2009	12	15	180	Accept
W9F0140-07	90050	Water	5/31/2009	6/12/2009	6/15/2009	12	15	180	Accept
W9F0140-08	90051	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-09	90052	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-10	90053	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-11	90054	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-12	90055	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-13	90057	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-14	90058	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-15	90059	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-16	90060	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-17	90061	Water	6/1/2009	6/12/2009	6/15/2009	11	14	180	Accept
W9F0140-18	90062	Water	6/2/2009	6/12/2009	6/15/2009	10	13	180	Accept
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/10/2009	7	8	180	Accept
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/10/2009	7	8	180	Accept
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/10/2009	7	8	180	Accept
W9F0142-02	90066	Water	6/2/2009	6/12/2009	6/14/2009	10	12	180	Accept
W9F0142-03	90067	Water	6/2/2009	6/12/2009	6/14/2009	10	12	180	Accept
W9F0142-04	90068	Water	6/2/2009	6/12/2009	6/14/2009	10	12	180	Accept
W9F0142-05	90069	Water	6/2/2009	6/12/2009	6/14/2009	10	12	180	Accept
W9F0142-06	90071	Water	6/2/2009	6/12/2009	6/14/2009	10	12	180	Accept
W9F0142-07	90072	Water	6/2/2009	6/12/2009	6/14/2009	10	12	180	Accept
W9F0142-08	90073	Water	6/3/2009	6/12/2009	6/14/2009	9	11	180	Accept
W9F0142-09	90074	Water	6/3/2009	6/12/2009	6/14/2009	9	11	180	Accept
W9F0142-10	90075	Water	6/3/2009	6/12/2009	6/14/2009	9	11	180	Accept
W9F0142-11	90076	Water	6/3/2009	6/12/2009	6/14/2009	9	11	180	Accept
W9F0142-12	90077	Water	6/3/2009	6/12/2009	6/14/2009	9	11	180	Accept
PB30A	90003	Water	5/28/2009	6/4/2009	6/8/2009	7	11	180	Accept
PB30B	90011	Water	5/29/2009	6/4/2009	6/8/2009	6	10	180	Accept
PB30C	90032	Water	5/30/2009	6/4/2009	6/8/2009	5	9	180	Accept
PB30D	90056	Water	6/1/2009	6/4/2009	6/8/2009	3	7	180	Accept
PB30E	90070	Water	6/2/2009	6/4/2009	6/8/2009	2	6	180	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 6020 or 7740 / Selenium									
W9F0136-01	90001	Water	5/28/2009	6/9/2009	6/22/2009	12	25	180	Accept
W9F0136-02	90002	Water	5/28/2009	6/9/2009	6/22/2009	12	25	180	Accept
W9F0136-03	90004	Water	5/28/2009	6/9/2009	6/22/2009	12	25	180	Accept
W9F0136-04	90005	Water	5/28/2009	6/9/2009	6/22/2009	12	25	180	Accept
W9F0136-05	90006	Water	5/28/2009	6/9/2009	6/22/2009	12	25	180	Accept
W9F0136-06	90007	Water	5/28/2009	6/9/2009	6/22/2009	12	25	180	Accept
W9F0136-07	90008	Water	5/28/2009	6/9/2009	6/22/2009	12	25	180	Accept
W9F0136-08	90009	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-09	90010	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-10	90011	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-11	90013	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-12	90014	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-13	90015	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-14	90016	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-15	90017	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-16	90018	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-17	90019	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-18	90020	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-19	90021	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0136-20	90022	Water	5/29/2009	6/9/2009	6/22/2009	11	24	180	Accept
W9F0137-01	90023	Water	5/29/2009	6/9/2009	6/23/2009	11	25	180	Accept
W9F0137-02	90024	Water	5/29/2009	6/9/2009	6/23/2009	11	25	180	Accept
W9F0137-03	90025	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-04	90026	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-05	90027	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-06	90028	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-07	90029	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-08	90030	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-09	90031	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-10	90033	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-11	90034	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-12	90035	Water	5/30/2009	6/9/2009	6/23/2009	10	24	180	Accept
W9F0137-13	90036	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept
W9F0137-14	90037	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept
W9F0137-15	90038	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept
W9F0137-16	90039	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept
W9F0137-17	90040	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept
W9F0137-18	90041	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept
W9F0137-19	90042	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
EPA 6020 or 7740 / Selenium									
W9F0137-20	90043	Water	5/31/2009	6/9/2009	6/23/2009	9	23	180	Accept
W9F0140-01	90044	Water	5/31/2009	6/9/2009	6/22/2009	9	22	180	Accept
W9F0140-02	90045	Water	5/31/2009	6/9/2009	6/22/2009	9	22	180	Accept
W9F0140-03	90046	Water	5/31/2009	6/9/2009	6/22/2009	9	22	180	Accept
W9F0140-04	90047	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-05	90048	Water	5/31/2009	6/9/2009	6/22/2009	9	22	180	Accept
W9F0140-06	90049	Water	5/31/2009	6/9/2009	6/22/2009	9	22	180	Accept
W9F0140-07	90050	Water	5/31/2009	6/9/2009	6/22/2009	9	22	180	Accept
W9F0140-08	90051	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-09	90052	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-10	90053	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-11	90054	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-12	90055	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-13	90057	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-14	90058	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-15	90059	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-16	90060	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-17	90061	Water	6/1/2009	6/9/2009	6/22/2009	8	21	180	Accept
W9F0140-18	90062	Water	6/2/2009	6/9/2009	6/22/2009	7	20	180	Accept
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/15/2009	7	13	180	Accept
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/15/2009	7	13	180	Accept
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/15/2009	7	13	180	Accept
W9F0142-02	90066	Water	6/2/2009	6/12/2009	6/22/2009	10	20	180	Accept
W9F0142-03	90067	Water	6/2/2009	6/12/2009	6/22/2009	10	20	180	Accept
W9F0142-04	90068	Water	6/2/2009	6/12/2009	6/22/2009	10	20	180	Accept
W9F0142-05	90069	Water	6/2/2009	6/12/2009	6/22/2009	10	20	180	Accept
W9F0142-06	90071	Water	6/2/2009	6/12/2009	6/22/2009	10	20	180	Accept
W9F0142-07	90072	Water	6/2/2009	6/12/2009	6/22/2009	10	20	180	Accept
W9F0142-08	90073	Water	6/3/2009	6/12/2009	6/22/2009	9	19	180	Accept
W9F0142-09	90074	Water	6/3/2009	6/12/2009	6/22/2009	9	19	180	Accept
W9F0142-10	90075	Water	6/3/2009	6/12/2009	6/22/2009	9	19	180	Accept
W9F0142-11	90076	Water	6/3/2009	6/12/2009	6/22/2009	9	19	180	Accept
W9F0142-12	90077	Water	6/3/2009	6/12/2009	6/22/2009	9	19	180	Accept
PB30A	90003	Water	5/28/2009	6/4/2009	6/9/2009	7	12	180	Accept
PB30B	90011	Water	5/29/2009	6/4/2009	6/9/2009	6	11	180	Accept
PB30C	90032	Water	5/30/2009	6/4/2009	6/9/2009	5	10	180	Accept
PB30D	90056	Water	6/1/2009	6/4/2009	6/9/2009	3	8	180	Accept
PB30E	90070	Water	6/2/2009	6/4/2009	6/9/2009	2	7	180	Accept

TABLE A-5.1
Holding Time Summary

SDG #	Sample ID	Matrix	Collection date	Extraction date	Analysis date	Hold Days to Extraction	Hold Days to Analysis	Required	Status
SM 2320 M / Acidity									
W9F0136-04	90005	Water	5/28/2009	6/5/2009	6/5/2009	8	8	14	Accept
W9F0142-06	90071	Water	6/2/2009	6/5/2009	6/10/2009	3	8	14	Accept
EPA 200.7/200.8 Total Recoverable Metals									
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/15/2009	7	13	180	Accept
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/15/2009	7	13	180	Accept
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/15/2009	7	13	180	Accept
EPA 245.1 Total Mercury									
W9F0203-01	90063	Water	6/2/2009	6/10/2009	6/10/2009	8	8	28	Accept
W9F0203-02	90064	Water	6/2/2009	6/10/2009	6/10/2009	8	8	28	Accept
W9F0203-03	90065	Water	6/2/2009	6/10/2009	6/10/2009	8	8	28	Accept
SM 2120 B / Color									
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/9/2009	7	7	2	Qual. J
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/9/2009	7	7	2	Qual. J
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/9/2009	7	7	2	Qual. J
SM 4500 H B / pH									
W9F0203-01	90063	Water	6/2/2009	6/9/2009	6/9/2009	7	7	1	Qual. J
W9F0203-02	90064	Water	6/2/2009	6/9/2009	6/9/2009	7	7	1	Qual. J
W9F0203-03	90065	Water	6/2/2009	6/9/2009	6/9/2009	7	7	1	Qual. J

TABLE A-5.2
Field Dup Comparison Summary

PROJECT: 913-1101-605A		DATE VALIDATED:		8/18/2009	
SDG: W9F0136					
FIELD SAMPLE ID =		90005	TW-39		
BLIND DUPLICATE ID =		90006	TW-39		
COMPOUND/ ANALYTE	SAMPLE RESULT	DUPLICATE RESULT	RPD	STATUS	
GENERAL CHEMISTRY (mg/L)					
	90005	90006			
Chloride	135	135	0.0	Accept	
Fluoride	3.76	3.34	11.8	Accept	
Sulfate as SO4	4300	647	147.7	J	
Ammonia as N	0.034	-0.03	3200.0	NA	
Nitrate/Nitrite as N	7.89	8.63	9.0	Accept	
Acidity	3330	NA	NA	NA	
Bicarbonate	-1	451	200.9	J	
Carbonate	-1	-1	0.0	NA	
Total Alkalinity	-1	451	200.9	J	
Total Diss. Solids	3770	1680	76.7	J	
Phosphorus	0.31	0.31	0.0	NA	
NA - duplicate rule does not apply; J - RPD exceeds 20% for water					
METALS (µg/L)					
	90005	90006			
Selenium	432	413	4.5	Accept	
Cadmium	16.8	17	1.2	Accept	
Calcium	180000	181000	0.6	Accept	
Magnesium	150000	150000	0.0	Accept	
Manganese	-1.5	-1.5	0.0	Accept	
Molybdenum	75	76.2	1.6	Accept	
Potassium	29500	29700	0.7	Accept	
Sodium	108000	109000	0.9	Accept	
Vanadium	14	14.2	1.4	Accept	
Zinc	157	154	1.9	Accept	
NA - duplicate rule does not apply; J - RPD exceeds 20% for water					

TABLE A-5.2
Field Dup Comparison Summary

PROJECT: 913-1101-605A		DATE VALIDATED: 8/18/2009		
SDG: W9F0136				
FIELD SAMPLE ID =	90013	TW-62		
BLIND DUPLICATE ID =	90014	TW-62		
COMPOUND/ ANALYTE	SAMPLE RESULT	DUPLICATE RESULT	RPD	STATUS
GENERAL CHEMISTRY (mg/L)				
	90013	90014		
Chloride	76.1	78.7	3.4	Accept
Fluoride	0.22	0.217	1.4	Accept
Sulfate as SO4	344	354	2.9	Accept
Ammonia as N	-0.03	-0.03	0.0	NA
Nitrate/Nitrite as N	5.41	4.89	10.1	Accept
Bicarbonate	687	693	0.9	Accept
Carbonate	-1	-1	0.0	NA
Total Alkalinity	687	693	0.9	Accept
Total Diss. Solids	1340	1350	0.7	Accept
Phosphorus	0.1	0.09	10.5	Accept
NA - duplicate rule does not apply; J - RPD exceeds 20% for water				
METALS (µg/L)				
	90013	90014		
Selenium	132	131	0.8	Accept
Cadmium	-0.13	-0.13	0.0	Accept
Calcium	201000	200000	0.5	Accept
Magnesium	128000	127000	0.8	Accept
Manganese	47.3	46.5	1.7	Accept
Molybdenum	5.6	5.7	1.8	Accept
Potassium	10700	10700	0.0	Accept
Sodium	58000	57500	0.9	Accept
Vanadium	2.1	2.1	0.0	Accept
Zinc	-0.94	3.6	341.4	NA
NA - duplicate rule does not apply; J - RPD exceeds 20% for water				

TABLE A-5.2
Field Dup Comparison Summary

PROJECT: 913-1101-605A		DATE VALIDATED: 8/18/2009	
SDG: W9F0137			
FIELD SAMPLE ID =	90029	TW-11	
BLIND DUPLICATE ID =	90030	TW-11	
COMPOUND/ ANALYTE	SAMPLE RESULT	DUPLICATE RESULT	RPD STATUS
GENERAL CHEMISTRY (mg/L)			
	90029	90030	
Chloride	35	30.9	12.4 Accept
Fluoride	0.272	0.275	1.1 Accept
Sulfate as SO4	89.8	90.2	0.4 Accept
Ammonia as N	4.67	4.92	5.2 Accept
Nitrate/Nitrite as N	3.94	3.94	0.0 Accept
Bicarbonate	411	431	4.8 Accept
Carbonate	-1	-1	0.0 NA
Total Alkalinity	411	431	4.8 Accept
Total Diss. Solids	588	588	0.0 Accept
Phosphorus	0.06	0.07	15.4 Accept
NA - duplicate rule does not apply; J - RPD exceeds 20% for water			
METALS (µg/L)			
	90029	90030	
Selenium	1.6	1.7	6.1 NA
Cadmium	-0.96	-0.96	0.0 NA
Calcium	98900	94600	4.4 Accept
Magnesium	38200	36800	3.7 Accept
Manganese	-1.3	-1.3	0.0 NA
Molybdenum	8.2	9.2	11.5 Accept
Potassium	8320	8040	3.4 Accept
Sodium	72200	69500	3.8 Accept
Vanadium	1.8	2.1	15.4 NA
Zinc	3.5	2.8	22.2 NA
NA - duplicate rule does not apply; J - RPD exceeds 20% for water			

TABLE A-5.2
Field Dup Comparison Summary

PROJECT: 913-1101-605A		DATE VALIDATED:		8/18/2009	
SDG: W9F0140					
FIELD SAMPLE ID =		90054	TW-33		
BLIND DUPLICATE ID =		90055	TW-33		
COMPOUND/ ANALYTE	SAMPLE RESULT	DUPLICATE RESULT	RPD	STATUS	
GENERAL CHEMISTRY (mg/L)					
	90054	90055			
Chloride	20.2	21.7	7.2	Accept	
Fluoride	0.257	0.257	0.0	Accept	
Sulfate as SO4	47.4	47.5	0.2	Accept	
Ammonia as N	-0.03	-0.03	0.0	NA	
Nitrate/Nitrite as N	4.41	4.45	0.9	Accept	
Bicarbonate	400	402	0.5	Accept	
Carbonate	-1	-1	0.0	NA	
Total Alkalinity	400	402	0.5	Accept	
Total Diss. Solids	479	498	3.9	Accept	
Phosphorus	0.18	0.17	5.7	Accept	
NA - duplicate rule does not apply; J - RPD exceeds 20% for water					
METALS (µg/L)					
	90054	90055			
Selenium	2.9	3	3.4	NA	
Cadmium	0.43	0.45	4.5	NA	
Calcium	110000	109000	0.9	Accept	
Magnesium	39000	38800	0.5	Accept	
Manganese	2.8	2.3	19.6	NA	
Molybdenum	41	40.9	0.2	Accept	
Potassium	2510	2480	1.2	Accept	
Sodium	16500	16400	0.6	Accept	
Vanadium	456	456	0.0	Accept	
Zinc	13.1	12.1	7.9	Accept	
NA - duplicate rule does not apply; J - RPD exceeds 20% for water					

TABLE A-5.2
Field Dup Comparison Summary

PROJECT: 913-1101-605A		DATE VALIDATED:		8/18/2009	
SDG: W9F0142					
FIELD SAMPLE ID =		90071	TW-55		
BLIND DUPLICATE ID =		90072	TW-55		
COMPOUND/ ANALYTE	SAMPLE RESULT	DUPLICATE RESULT	RPD	STATUS	
GENERAL CHEMISTRY (mg/L)					
	90071	90072			
Chloride	44.8	48.1	7.1		Accept
Fluoride	1.48	0.714	69.8		J
Sulfate as SO4	161	186	14.4		Accept
Ammonia as N	-0.03	-0.03	0.0		NA
Nitrate/Nitrite as N	3.09	3.12	1.0		Accept
Acidity	1000	NA	NA		NA
Bicarbonate	-1	833	200.5		J
Carbonate	-1	-1	0.0		NA
Total Alkalinity	-1	833	200.5		J
Total Diss. Solids	2590	1120	79.2		J
Phosphorus	0.13	0.13	0.0		Accept
NA - duplicate rule does not apply; J - RPD exceeds 20% for water					
METALS (µg/L)					
	90071	90072			
Selenium	30.9	31.3	1.3		Accept
Cadmium	-0.96	-0.96	0.0		NA
Calcium	197000	199000	1.0		Accept
Magnesium	121000	123000	1.6		Accept
Manganese	-1.3	-1.3	0.0		NA
Molybdenum	-2.3	-2.3	0.0		NA
Potassium	9630	9630	0.0		Accept
Sodium	38900	38800	0.3		Accept
Vanadium	1.2	1	18.2		NA
Zinc	-1.9	-1.9	0.0		NA
NA - duplicate rule does not apply; J - RPD exceeds 20% for water					

TABLE A-5.3
Laboratory Split Comparison / SVL Analytical and Analytical Resources Laboratories

PROJECT: 913-1101-605A			DATE VALIDATED:		8/18/2009	
SDG: SVL Analytical # W9F0136						
SDG: Analytical Resources Inc. # PB30						
			SAMPLE RESULT	DUPLICATE RESULT		
SAMPLE ID	LOCATION	COMPOUND/ ANALYTE	SVL (mg/L)	ARI (mg/L)	RPD	STATUS
90002/90003	TW-20	Chloride	93.6	83.7	11.2	Accept
90002/90003	TW-20	Fluoride	2.13	1.8	16.8	Accept
90002/90003	TW-20	Sulfate as SO4	467	440	6.0	Accept
90002/90003	TW-20	Ammonia as N	-0.03	0.05	800.0	NA
90002/90003	TW-20	Nitrate/Nitrite as N	8.81	8.93	1.4	Accept
90002/90003	TW-20	Bicarbonate	367	NA	NA	NA
90002/90003	TW-20	Carbonate	-1	NA	NA	NA
90002/90003	TW-20	Total Alkalinity	367	375	2.2	Accept
90002/90003	TW-20	Total Diss. Solids	1260	1300	3.1	Accept
90002/90003	TW-20	Phosphorus	0.2	0.792	119.4	Fail
90002/90003	TW-20	Selenium	0.0994	0.12	18.8	Accept
90002/90003	TW-20	Cadmium	0.0048	0.003	46.2	NA
90002/90003	TW-20	Calcium	164	169	3.0	Accept
90002/90003	TW-20	Magnesium	102	106	3.8	Accept
90002/90003	TW-20	Manganese	-0.0015	0.002	1400.0	NA
90002/90003	TW-20	Molybdenum	0.0426	0.044	3.2	Accept
90002/90003	TW-20	Potassium	15.8	15.4	2.6	Accept
90002/90003	TW-20	Sodium	65.4	65.5	0.2	Accept
90002/90003	TW-20	Vanadium	0.0057	0.006	5.1	Accept
90002/90003	TW-20	Zinc	0.0771	0.08	3.7	Accept

NA - Not analyzed; Fail - RPD exceeds 20% for water

TABLE A-5.3
Laboratory Split Comparison / SVL Analytical and Analytical Resources Laboratories

PROJECT: 913-1101-605A			DATE VALIDATED:		8/18/2009	
SDG: SVL Analytical # W9F0136						
SDG: Analytical Resources Inc. # PB30						
			SAMPLE RESULT	DUPLICATE RESULT		
SAMPLE ID	LOCATION	COMPOUND/ ANALYTE	SVL (mg/L)	ARI (mg/L)	RPD	STATUS
90011*	TW-59	Chloride	64.2	60.6	5.8	Accept
90011*	TW-59	Fluoride	0.23	0.2	14.0	Accept
90011*	TW-59	Sulfate as SO4	279	266	4.8	Accept
90011*	TW-59	Ammonia as N	-0.03	0.042	1200.0	NA
90011*	TW-59	Nitrate/Nitrite as N	5.03	4.89	2.8	Accept
90011*	TW-59	Bicarbonate	766	NA	NA	NA
90011*	TW-59	Carbonate	-1	NA	NA	NA
90011*	TW-59	Total Alkalinity	766	763	0.4	Accept
90011*	TW-59	Total Diss. Solids	1260	1310	3.9	Accept
90011*	TW-59	Phosphorus	0.09	0.764	157.8	Fail
90011*	TW-59	Selenium	0.107	0.14	26.7	Fail
90011*	TW-59	Cadmium	-0.00013	0.002	227.8	NA
90011*	TW-59	Calcium	206	210	1.9	Accept
90011*	TW-59	Magnesium	124	129	4.0	Accept
90011*	TW-59	Manganese	0.0036	0.006	50.0	NA
90011*	TW-59	Molybdenum	0.0043	0.007	47.8	NA
90011*	TW-59	Potassium	9.88	9.4	5.0	Accept
90011*	TW-59	Sodium	48.2	47.4	1.7	Accept
90011*	TW-59	Vanadium	0.002	0.003	40.0	NA
90011*	TW-59	Zinc	-0.00094	0.01	241.5	NA

NA - Not analyzed; Fail - RPD exceeds 20% for water; * Submitted to both labs under same sample ID

TABLE A-5.3
Laboratory Split Comparison / SVL Analytical and Analytical Resources Laboratories

PROJECT: 913-1101-605A			DATE VALIDATED:		8/18/2009	
SDG: SVL Analytical # W9F0137						
SDG: Analytical Resources Inc. # PB30						
			SAMPLE RESULT	DUPLICATE RESULT		
SAMPLE ID	LOCATION	COMPOUND/ ANALYTE	SVL (mg/L)	ARI (mg/L)	RPD	STATUS
90031/90032	TW-12	Chloride	35.4	33.6	5.2	Accept
90031/90032	TW-12	Fluoride	0.254	0.2	23.8	NA
90031/90032	TW-12	Sulfate as SO4	83.7	82.7	1.2	Accept
90031/90032	TW-12	Ammonia as N	3.97	4.01	1.0	Accept
90031/90032	TW-12	Nitrate/Nitrite as N	5.37	4.89	9.4	Accept
90031/90032	TW-12	Bicarbonate	408	NA	NA	NA
90031/90032	TW-12	Carbonate	-1	NA	NA	NA
90031/90032	TW-12	Total Alkalinity	408	402	1.5	Accept
90031/90032	TW-12	Total Diss. Solids	608	610	0.3	Accept
90031/90032	TW-12	Phosphorus	0.39	0.95	83.6	Fail
90031/90032	TW-12	Selenium	0.0048	0.008	50.0	NA
90031/90032	TW-12	Cadmium	-0.00096	0.002	569.2	NA
90031/90032	TW-12	Calcium	109	107	1.9	Accept
90031/90032	TW-12	Magnesium	44.7	43.9	1.8	Accept
90031/90032	TW-12	Manganese	0.0187	0.02	6.7	Accept
90031/90032	TW-12	Molybdenum	0.195	0.184	5.8	Accept
90031/90032	TW-12	Potassium	5.11	4.7	8.4	Accept
90031/90032	TW-12	Sodium	36.2	34.6	4.5	Accept
90031/90032	TW-12	Vanadium	0.438	0.414	5.6	Accept
90031/90032	TW-12	Zinc	0.0041	0.01	83.7	NA

NA - Not analyzed; Fail - RPD exceeds 20% for water

TABLE A-5.3
Laboratory Split Comparison / SVL Analytical and Analytical Resources Laboratories

PROJECT: 913-1101-605A			DATE VALIDATED:			8/18/2009	
SDG: SVL Analytical # W9F0140							
SDG: Analytical Resources Inc. # PB30							
			SAMPLE RESULT	DUPLICATE RESULT	TRIPLICATE RESULT		
SAMPLE ID	LOCATION	COMPOUND/ ANALYTE	SVL (mg/L)	SVL (mg/L)	ARI (mg/L)	RPD	STATUS
90054/90055/90056*	TW-33	Chloride	20.2	21.7	19.5	5.5	Accept
90054/90055/90056*	TW-33	Fluoride	0.257	0.257	0.2	13.8	Accept
90054/90055/90056*	TW-33	Sulfate as SO4	47.4	47.5	45.5	2.4	Accept
90054/90055/90056*	TW-33	Ammonia as N	-0.03	-0.03	0.017	-189.3	NA
90054/90055/90056*	TW-33	Nitrate/Nitrite as N	4.41	4.45	3.89	7.4	Accept
90054/90055/90056*	TW-33	Bicarbonate	400	402	NA	NA	NA
90054/90055/90056*	TW-33	Carbonate	-1	-1	NA	NA	NA
90054/90055/90056*	TW-33	Total Alkalinity	400	402	404	0.5	Accept
90054/90055/90056*	TW-33	Total Diss. Solids	479	498	990	44.2	Fail
90054/90055/90056*	TW-33	Phosphorus	0.18	0.17	0.566	74.0	Fail
90054/90055/90056*	TW-33	Selenium	0.0029	0.003	0.004	18.4	Accept
90054/90055/90056*	TW-33	Cadmium	0.00043	0.00045	0.002	93.8	NA
90054/90055/90056*	TW-33	Calcium	110	109	107	1.4	Accept
90054/90055/90056*	TW-33	Magnesium	39	38.8	38.6	0.5	Accept
90054/90055/90056*	TW-33	Manganese	0.0028	0.0023	0.003	13.4	Accept
90054/90055/90056*	TW-33	Molybdenum	0.041	0.0409	0.043	2.8	Accept
90054/90055/90056*	TW-33	Potassium	2.51	2.48	2.3	4.7	Accept
90054/90055/90056*	TW-33	Sodium	16.5	16.4	16	1.6	Accept
90054/90055/90056*	TW-33	Vanadium	0.456	0.456	0.406	6.6	Accept
90054/90055/90056*	TW-33	Zinc	0.0131	0.0121	0.01	13.5	Accept
NA - Not analyzed; Fail - RPD exceeds 20% for water; * Field Dup also submitted							

TABLE A-5.3
Laboratory Split Comparison / SVL Analytical and Analytical Resources Laboratories

PROJECT: 913-1101-605A			DATE VALIDATED:		8/18/2009	
SDG: SVL Analytical # W9F0142						
SDG: Analytical Resources Inc. # PB30			SAMPLE RESULT		DUPLICATE RESULT	
SAMPLE ID	LOCATION	COMPOUND/ ANALYTE	SVL (mg/L)	ARI (mg/L)	RPD	STATUS
90069/90070	TW-54	Chloride	82.3	77.9	5.5	Accept
90069/90070	TW-54	Fluoride	4.21	2.8	40.2	NA
90069/90070	TW-54	Sulfate as SO4	377	372	1.3	Accept
90069/90070	TW-54	Ammonia as N	-0.03	0.05	800.0	NA
90069/90070	TW-54	Nitrate/Nitrite as N	7.35	6.81	7.6	Accept
90069/90070	TW-54	Bicarbonate	388	NA	NA	NA
90069/90070	TW-54	Carbonate	-1	NA	NA	NA
90069/90070	TW-54	Total Alkalinity	388	396	2.0	Accept
90069/90070	TW-54	Total Diss. Solids	1150	1180	2.6	Accept
90069/90070	TW-54	Phosphorus	0.22	0.76	110.2	Fail
90069/90070	TW-54	Selenium	0.136	0.17	22.2	Fail
90069/90070	TW-54	Cadmium	-0.00096	0.002	569.2	NA
90069/90070	TW-54	Calcium	144	144	0.0	Accept
90069/90070	TW-54	Magnesium	97.3	98.3	1.0	Accept
90069/90070	TW-54	Manganese	0.0034	0.001	109.1	NA
90069/90070	TW-54	Molybdenum	0.0789	0.078	1.1	Accept
90069/90070	TW-54	Potassium	19.2	18.4	4.3	Accept
90069/90070	TW-54	Sodium	69.1	67.9	1.8	Accept
90069/90070	TW-54	Vanadium	0.0043	0.006	33.0	NA
90069/90070	TW-54	Zinc	0.0627	0.06	4.4	Accept

NA - Not analyzed; Fail - RPD exceeds 20% for water

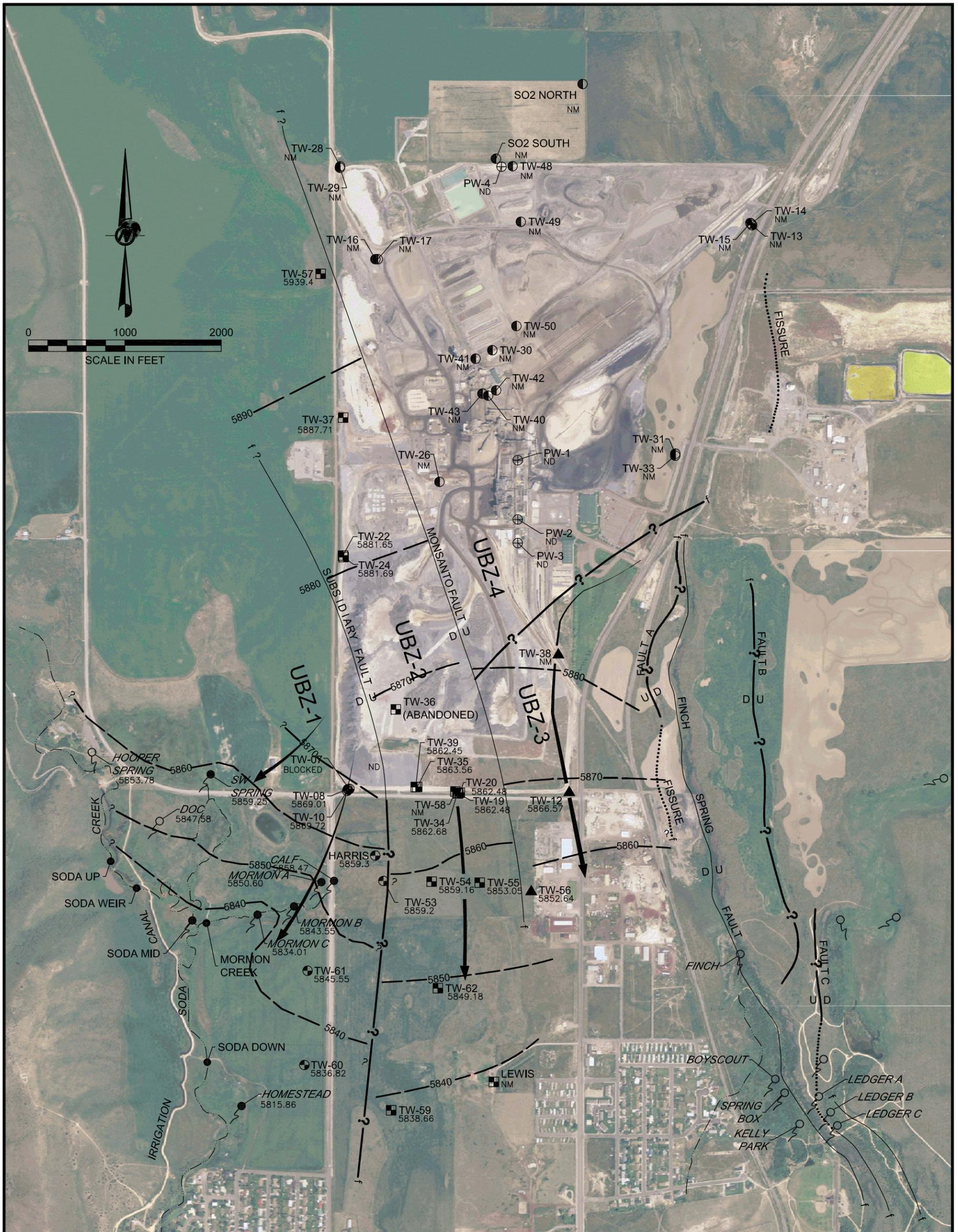
TABLE A-5.4
Field Blank Summary

PROJECT: 913-1101-605A				DATE VALIDATED: 8/18/2009			
SDG: SVL Analytical # W9F0140							
DI BLANK							
SAMPLE ID	COMPOUND/ ANALYTE	UNITS	RESULT	QUALIFIER	PQL	MDL	STATUS
90049	Chloride	mg/L	-0.2	U	0.2	0.05	Accept
90049	Fluoride	mg/L	-0.1	U	0.1	0.023	Accept
90049	Sulfate as SO4	mg/L	-0.3	U	0.3	0.04	Accept
90049	Ammonia as N	mg/L	-0.03	U	0.03	0.01	Accept
90049	Nitrate/Nitrite as N	mg/L	-0.05	U	0.05	0.0016	Accept
90049	Bicarbonate	mg/L	1.6		1	0.3	DETECT
90049	Carbonate	mg/L	-1	U	1	0.3	Accept
90049	Total Alkalinity	mg/L	1.6		1	0.3	DETECT
90049	Total Diss. Solids	mg/L	-10	U	10	4	Accept
90049	Phosphorus	mg/L	-0.01	U	0.01	0.003	Accept
90049	Selenium	µg/L	-0.6	U	7.5	0.6	Accept
90049	Cadmium	µg/L	-0.13	U	2	0.13	Accept
90049	Calcium	µg/L	12.8	J	40	10	Accept
90049	Magnesium	µg/L	-8.9	U	60	8.9	Accept
90049	Manganese	µg/L	-1.5	U	4	1.5	Accept
90049	Molybdenum	µg/L	-0.31	U	8	0.31	Accept
90049	Potassium	µg/L	-94	U	500	94	Accept
90049	Sodium	µg/L	829		500	20	DETECT
90049	Vanadium	µg/L	-0.17	U	5	0.17	Accept
90049	Zinc	µg/L	-0.94	U	10	0.94	Accept

TABLE A-5.4
Field Blank Summary

PROJECT: 913-1101-605A				DATE VALIDATED: 8/18/2009			
SDG: SVL Analytical # W9F0142							
GRUNDFOS BLANK							
SAMPLE ID	COMPOUND/ ANALYTE	UNITS	RESULT	QUALIFIER	PQL	MDL	STATUS
90067	Chloride	mg/L	0.32		0.2	0.05	DETECT
90067	Fluoride	mg/L	-0.1	U	0.1	0.023	Accept
90067	Sulfate as SO4	mg/L	-0.3	U	0.3	0.04	Accept
90067	Ammonia as N	mg/L	-0.03	U	0.03	0.01	Accept
90067	Nitrate/Nitrite as N	mg/L	-0.05	U	0.05	0.0016	Accept
90067	Bicarbonate	mg/L	-1	U	1	0.3	Accept
90067	Carbonate	mg/L	-1	U	1	0.3	Accept
90067	Total Alkalinity	mg/L	-1	U	1	0.3	Accept
90067	Total Diss. Solids	mg/L	-10	U	10	4	Accept
90067	Phosphorus	mg/L	0.05		0.01	0.003	DETECT
90067	Selenium	µg/L	-0.6	U	7.5	0.6	Accept
90067	Cadmium	µg/L	-0.96	U	2	0.96	Accept
90067	Calcium	µg/L	122		40	18	DETECT
90067	Magnesium	µg/L	68.6		60	15	DETECT
90067	Manganese	µg/L	-1.3	U	4	1.3	Accept
90067	Molybdenum	µg/L	-2.3	U	8	2.3	Accept
90067	Potassium	µg/L	-69	U	500	69	Accept
90067	Sodium	µg/L	492	J	500	41	Accept
90067	Vanadium	µg/L	0.5	J	5	0.48	Accept
90067	Zinc	µg/L	-1.9	U	10	1.9	Accept

APPENDIX L
GROUNDWATER ELEVATION IN THE UPPER BASALT ZONE (SEPTEMBER 2008)



LEGEND:	
	f FAULT
	f FAULT (INFERRED)
	f FISSURE
	UBZ-1 GROUNDWATER ZONE
	GROUNDWATER FLOW DIRECTION
	GROUNDWATER CONTOUR (10 FOOT INTERVAL)
	MORMON A
	MORMON B
	MORMON CREEK
	SPRING LOCATION WITH NAME (WHERE KNOWN)
	SPRING LOCATION (NOT SAMPLED) WITH NAME (WHERE KNOWN)
	SURFACE WATER LOCATION WITH NAME
	GROUNDWATER ELEVATION (FEET) WITH QUALIFIER (IF ANY) ND = NO DATA NM = NO MEASURED
	TW-60 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-1
	TW-59 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-2
	TW-56 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-3
	TW-28 MONITORING WELL LOCATION WITH NAME IN GROUNDWATER ZONE UBZ-4
	PW-1 PRODUCTION WELL LOCATION WITH NAME

FIGURE 1
GROUNDWATER ELEVATION IN THE
UPPER BASALT ZONE (SEPTEMBER 2008)
 MONSANTO/2009 ANNUAL REPORT/ID

SOURCE:
 AERIAL PHOTO FROM MONSANTO (5/2/2003).
 SITE TOPOGRAPHY FROM AERIAL MAPPING, INC., IDAHO (5/11/1996).
 WELL TOPOGRAPHY BY GOLDER ASSOCIATES, (12/12/2001).